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COTTAGE GARDENER,

AND

HOME FARMER.

A CHRONICLE OF COUNTRY PURSUITS AND COUNTRY LIFE, INCLUDING BEE-KEEPING.

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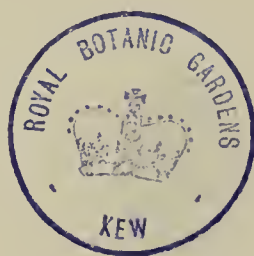
AND THE GARDENERS' CHRONICLE

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TO OUR READERS.

THE period which the annexed index covers includes an event that will be marked as an historical epoch in the nation's life.

A circumstance so remarkable as the fiftieth anniversary of the accession of our Sovereign was naturally a time of rejoicing, and the great community of horticulturists shared in the joyousness. They also gave expression to a desire to commemorate the event in a befittingly practical and appropriate manner—increasing the means for benefiting aged gardeners who can no longer labour, and establishing a fund for gardeners' children who may be left without means of support.

The Gardeners' Royal Benevolent Institution has been strengthened and the Gardeners' Orphan Fund originated during the first half of the memorable year of 1887, and we cannot let this pass without prominent record.

And, strongly desirous of seeing those who have toiled in making British gardening what it is to-day comfortably circumstanced in the eventide of life, also gratefully feeling that some provision will now be made for those helpless children of gardeners who have been called away, we wish to register our thanks earnestly and sincerely to all who have shared in the good work alluded to, and in commemorating the year of the "Queen's Jubilee" in such a commendable way.

We also desire to express our deep obligations to "hosts of friends" for their able and willing co-operation in the compilation of the pages of this Journal during the same period of time.

Glad are we to know that those of ripe experience will continue to enrich our pages, and with pleasure do we recognise the steady accretion of young aspirants to fame in their calling who give promise of becoming worthy coadjutors in the work in which we are all engaged—the promotion of good gardening and the advancement of horticulture.

It is pleasing to know from the best of evidence that the combined efforts of readers, writers, and editors fail not in their object in rendering the Journal useful and acceptable. Of this we could give much testimony, but content ourselves with a few lines from a "coming man" who writes from a famous garden. "The Journal gets better every year; it is *the* paper for practical men, and everyone in the bothies here goes for it as soon as it arrives."

There is no mistaking the earnestness in that case, and we know it is typical. We are determined in turn to maintain the interest in its pages, and to compel old and young to "go for it" with a zeal that will command continuous success.

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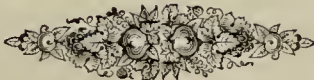
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COMING EVENTS

6	TH	Royal Botanic Society at 3.45 P.M. 1ST SUNDAY AFTER EPIPHANY.
7	F	
8	S	
9	SUN	
10	M	Royal Hort. Society, Fruit and Floral Committees at 11 A.M. National Chrysanthemum Society's Winter Show at Westminster.
11	TU	
12	W	

THE NEW YEAR.

THE Old Year has gone for ever, and has been in many respects eventful. Some of the horticultural events and products will be recorded as time rolls on, for a good deal that is worthy of recapitulation has been accomplished in 1886. The year on which we have now entered will be memorable above all others of which we have record—the Jubilee of the venerated Sovereign of this realm and its world-wide dependencies. The first Victoria of Great Britain is the only Queen who has reigned so long in this, if in any other country. It will be a year of public and private rejoicing, but many there will be who cannot share in the joyousness that will flow in commemoration of the great and gratifying historical event. The past year has not been a bright and prosperous one to all, and many a dark shadow will be cast over the future; but better times we shall hope will come with brighter days, and it will be a glad some circumstance if the past year shall have been the last of a series in which trade and commerce have been abnormally inactive, and if the year of rejoicing shall inaugurate an epoch of national prosperity.

Whatever the contributing causes, and there are many, there have been ebbs and flows in national as in individual life through all past times. Every stroke has its rebound. Periods of brisk trade and great commercial activity lead to inflation and over-production; and this in turn to slackness that culminates in stagnation for the time being, entailing loss to capitalists, and privations to many who live by their labour. There would appear to be a disposition on the part of many persons, if not the majority, to regard the last cloud that passes over as the darkest that has overshadowed a nation. Admitting the difficulties of the day in regard to trade, commerce, and especially the great agricultural industry, it must be also admitted that they do not exist in this country alone, but they are as acute in other lands as in our own. The overstocking of the markets of the world has been general, and overstocking always did and always will lead to a depreciation in the value of produce of whatever kind it may be; and necessarily also in the value of the labour employed in that production. If the supply of anything is in excess of the demand there is an inevitable decrease in value. No legislative enactment can supersede that great natural law. No matter whether the produce of the soil is in question, manufactured articles, or the commodity of labour, all are influenced. If there are two masters competing for one man, the man's services are enhanced in value, and the wage rate increases; but if, on the contrary, there are two or more men competing for

the employment of one master, the value of their labour decreases and wages must come down. No combination can avert this. "Nothing" once observed a great statesman, "is so certain to occur as the unexpected." It was a trite remark; for nothing is more certain than the inevitable, and that has often been the reverse of what was contemplated by well-intentioned but ill-informed and misguided people.

We are, if ever we were, face to face with the fact that, however unpalatable to a large and most respectable class of the community, cannot be ignored—namely, that there are not now two masters competing for the services of one gardener. No matter the reason of this; we record the fact in the best interests of both employers and employed. To those gardeners we will say, what we have intimated before, Do not hunger after a change because you see some of your brethren are more fortunate than you. Many of the best of them to our knowledge were once in positions the reverse of enviable, but by doing the best in those positions, striving honestly and earnestly to develop the utmost of the moderate resources, and "holding on," the time came when a vacancy occurred, and they had won in the meantime a character for ability, industry, and steady resolve in the path of duty that gave them a commanding advantage over their less patient and non-fickle rivals for the coveted position.

We know many gardeners at this moment qualified both by experience in the vocation and educational attainments to fill with certain credit to themselves and the craft to which they belong positions better than they now occupy; but what avails all this if there are no vacancies representing the ideal of their aspirations? Let all such men stand firm where on anything like solid ground at present, even if it be more or less rugged; and until they can see their way clearly to step on a still firmer foundation with certainty we counsel them to pause before throwing themselves on the great world of chance, which has proved the ruin of many reputations. We would impress this truth on all gardeners at present established in large or small responsibilities that are not exactly what are desired, that for every vacancy afforded, no matter of what nature it may be, we can point to men, thoroughly good, trustworthy, experienced, and respectable men, ready and even anxious to fill it; and we are painfully conscious of the inability of some of the most thorough and industrious of gardeners to find opportunities for the exercise of their qualifications. They are longing for a field for their labours, and would rejoice in stepping into a breach created by a fellow worker who is not, and perhaps not without reason, quite satisfied with his present engagement. In any contemplated changes during the early spring of 1887 we desire that the real facts of the situation be comprehended by all who live by their labour in the career of gardening.

We have something to say, too, to employers of gardeners, and conceive there can be no more appropriate time for saying it than at the commencement of a new year. It is this. Do not over-estimate the quality of "cheapness," nor hastily part with a man of proved competency with the object of saving £5 or £10 a year. Mistakes have been made in this respect, and we know of some that are serious. We know of valuable plants spoiled, Vines ruined, and fruit trees jeopardised through a change that was hoped to be economical, but which has proved most costly. We could tell of men rejected a year or two ago—men of wide experience and proved

competency—in favour of others whose services were obtained at a few shillings a week less, and who have failed by undertaking charges beyond their capacity, and the men at first rejected are now gladly taken in their stead to put as soon as they can things that have gone wrong right once again. We are recording stern facts which may possibly be suggestive in averting further evils on the ground of mere “cheapness.” Nothing is cheap that is inferior, and the man or the article that can be had at a small outlay is often, if not always, the most costly in the end.

Let it not be surmised that all young gardeners are necessarily inferior to the old. The exact reverse is the case in many comparisons. Competency is not altogether a question of age. Some of the greatest feats in history have been accomplished by men young in years, but not in experience. Facilities and antecedents are factors that cannot be overlooked, and assurance being had on these points the energy, zeal, and ambition to win a reputation have not unfrequently overborne all obstacles; but there must be sound knowledge founded on experience, and men who have proved by their works have claims to consideration that cannot be lightly set aside without the possibility of a mistake occurring.

It has been said that there is a disposition to regard the last cloud as the darkest, and it is certain that many persons are firm in the conviction that “times” were never so bad as now. They forget the past, if they ever knew it. Lower wages, greater general privation, and far less business was transacted in the industry of horticulture some years ago than obtain at present, and recovery came then, as it will come now. Every obstacle is proclaimed in these days of publicity that once remained obscure; and difficulties are occasionally, if not habitually, magnified that were borne in comparative silence. More of the patient plodding of past days seems to be want of the times. It is gratifying to observe that gardeners as a body are alive to the importance of self-improvement, for they stand almost alone in their efforts to attain competency through the mutual help that is afforded in the increasing societies that have for their sole object the making of better men and more profitable servants. That should be the aim of all in whatever calling they may be engaged, and this united action will sooner or later result in general improvement. There are not wanting signs of recovery in trade, and notably in agriculture, and there is good hope that the year on which we are now entering will mark the commencement of an era of better times for all.

HORTICULTURE IN 1886.

Ah me! how the years roll on; and surely they roll quicker as we ourselves are nearing the end of our journey. Is it not because we know that there cannot be many more? Time was when we looked on and thought how many there were perhaps yet to come; now we look forward knowing that there cannot be many. Happy they who can look back with thankfulness and look forward without fear. But I must not mount the pulpit stairs, but just from my potting bench take a run over the past year so far as it affects horticulture. It has hardly been an eventful year, although good work has been done.

When one writes of horticulture in England the natural feeling is first of all to revert to the Royal Horticultural Society, the sun and centre of the art in England. Alas! the sun is under eclipse, and the centre somewhat difficult to find. There is this difficulty in writing about it, that if anyone finds fault it is considered that it must be done in a spirit of opposition, and that one must be actuated by the spirit of “envy, hatred, malice, and all uncharitableness;” but surely this is very childish. Then if alterations or improvements are suggested it is at once said, “But there is the Charter.” I am sure all horticulturists are grateful to the present Council for undertaking the management of a Society whose position is so humiliating and so

unworthy of that which it ought to occupy as the representative of English horticulture. For a long time its position has been very hard to define, and still more hard for its responsible advisers to endure, and yet they have not lost heart; and not even Mark Tapley himself could have shown a more serene front in the face of difficulties than they have. The manner, too, in which the horticulturists of the kingdom took up, and still, notwithstanding all, repose confidence in it, has been shown by the Conferences which it has of late years held—the Apple and Pear Congresses at Chiswick and the Daffodil and Primula Conferences at South Kensington go far to show this; and that of the latter flower held during the past year was in no point less interesting than its predecessors. It was unfortunate that the year was unfavourable for the flower on which the Conference was engrafted—the Auricula, but withal no one will regret that they had the opportunity of seeing so many and such beautiful species and varieties of this charming spring flower. Nothing could perhaps better show this confidence than the contrast exhibited by the Tercentenary of the Potato held at the Aquarium. I heard one of those who lectured there, one well known and greatly valued in the horticultural world, say he had before him when he lectured 200 chairs, a reporter, and a personal friend! I venture to say had it been held at South Kensington, and managed by Mr. Barron, the case would have been very different. The fortnightly meetings have continued to be a great enjoyment to horticulturists, and a great means of bringing them together and affording the opportunity of bringing new and interesting plants before the public. The future, both of the Society and the South Kensington Gardens themselves, seems involved in impenetrable darkness. Whether the scheme for making the upper part, with the Albert Hall, a place of amusement, connecting the Royal with it, and the building of the new Imperial Institute in the lower part of the grounds will be effected, or what may be its future none seems to know. One great evil connected with this inactivity is that those Societies, the National Rose, the Primula and Auricula, Carnation and Picotee Societies, which have made it their home, are unable to fix their arrangements. The sister Society, the Royal Botanic, has held on its usual course of usefulness and popularity. Its meetings have been well attended, and a fairly successful financial year been completed. I may also be permitted to notice the very successful season that the Horticultural Club has had. A series of papers has been read at its meetings, which have appeared in the leading horticultural papers, and some of which have elicited a good deal of correspondence, resulting in much valuable information being given.

I do not think that horticulture gained a great deal by the magnificent Indian and Colonial Exhibition; the plants seen there were pretty well known, and I think that the most interesting point connected with it was the very successful manner in which the New Zealand and Australian Ferns, especially the *Todæa*, were managed by Mr. Barron. We must not omit the Shows at the Crystal Palace, which have been carried out in the usual extensive scale which characterises that Institution. Both the Rose Show and the Autumn Flower and Fruit Show were very successful. The exhibition of the National Chrysanthemum Society, held at the Aquarium, showed how widely extended the culture of this most valuable winter flower has become, and we of the National Rose Society must feel not a little gratified that a good deal of the success has arisen from the fact that they have gone upon its lines.

The most remarkable of the provincial exhibitions held during the year was that of the Royal Horticultural Society at Liverpool, remarkable for its extent and for its utter financial failure. There are some of us who know Liverpool who anticipated nothing less; it showed, too, very unmistakeably that it is a great error to suppose that another attraction at the same time enhances the probability of success. It is quite the reverse; people who went through the Industrial Exhibition felt very little inclination to go to the Horticultural Show, and the fact of its being held during the election week was most unfavourable. Manchester as usual was carried out with great spirit and with a fair amount of success, despite of unfavourable weather. Other societies seem to have done fairly well, and the Rose societies especially were favoured in every instance with fine weather, and one comes to the conclusion that, notwithstanding the depression and the almost complete absorption of public interest in political matters, the progress of horticulture is unmistakeable. We have long been at the head of all sections in our devotion to the fascinating pursuit, and there are no signs of our lagging behind, but every year indicates advance. The world is ransacked to supply the eager desire for novelty, and in no flower has this been exhibited so strongly as in Orchids. New growers are starting up on all sides, and the high prices obtained for really valuable specimens show how general the taste has become; while the immense importation of the commoner kinds has reduced their prices to a sum which I should hardly think can pay the cost of importation. The same may be said of Lilies. How can it pay to import

Lilium auratum when they can be bought (really good bulbs) at sales for about £1 a 100, and at some times even less? And my memory goes back to 1861, when the late Mr. Rucker carried off in triumph the first that had bloomed in England for fifteen guineas! Neither in plants nor florists' flowers has there been anything very remarkable. In Orchids many beautiful plants have been introduced, but nothing so startling as was the case a few years ago. The same may be said of florists' flowers. There have been new Dahlias, new Carnations and Picotees, new Gladioli, but there has been no marked improvement or any new departure. Chrysanthemums have become an utter mass of confusion. One French grower announces 100 new ones, and the intensely disinterested desire to satisfy our love for novelty is even more manifested with regard to that flower than with the Rose. It will no doubt itself prove the remedy, for the utter hopelessness of trying to grow these will lead amateurs to grow none and let the nurserymen try them and select the best.

In what may be called horticultural literature there has not been such marked changes as in some former years. The weekly journals, catering to every grade of horticulturists, and supplying valuable information, have completely shut up the monthly publications. The "Botanical Magazine" still holds on its course, and is now a centenarian; but then it appertains to horticulture only in a secondary sense. It is a severely scientific journal, although often horticulturists revert to its pages.

The roll-call has not elicited so many fallings out as in former years. Some, indeed, have left us; one, to whom it is impossible to refer without recalling times long past, when he was more actively engaged in horticulture than of late years—I mean the doyen of horticultural literature, the late Mr. G. W. Johnson, the originator of that which was once the *Cottage Gardener* and is now "the Journal." So much has been so well said about him that there is no necessity for me to say more. Then our valued friend, "C. P. P.," has been called away, but he, too, had a long time previously ceased to take an active part in that which at one time he so thoroughly entered into. Then an excellent gardener in Mr. Stevens of Trentham is no longer with us. Others also less known will be missed in many horticultural circles, but the year has not brought such serious losses as the two preceding ones.

And now we are commencing a year which in some senses will be the most remarkable one of this century—the Jubilee Year of our well-beloved Queen. It is true that it has already witnessed a Royal Jubilee, but how different this to that of her poor old grandfather, worn out in mind and body, and incapable of fulfilling the duties of a Sovereign; while she, fulfilling them as no other Sovereign of England has ever done, and enthroned not only on the firm throne of a united Empire, but also in the hearts of her subjects, is looked up to all through her Empire as the pattern of all that is good! What will be its effect on our delightful hobby we know not. There are clouds over us as there are over our statesmen and legislators; but let us hope that these clouds may be dispersed, and that we may have a prosperous year; and while thus looking back, as I have done, I would make use of my opportunity as the oldest contributor to the *Journal* of wishing it and all its readers

A VERY HAPPY AND BRIGHT NEW YEAR.

—D., Deal.

DEATH OF MR. THOMAS MOORE, F.L.S.

WE have to record this week the death of one who has held a prominent place in the horticulture, and especially the botanical horticulture, of this country for many years past. Mr. Thomas Moore breathed his last on the morning of the 1st inst. at the Botanic Garden, Chelsea, where he had occupied the place of Curator for the long period of thirty-nine years, respected by all who knew him and admired for his work's sake by those who had not the privilege of his personal acquaintance. For some time past Mr. Moore has been obliged to withdraw himself from the active part he was wont to take in horticultural work. Notably his previous regular appearances at the meetings of the Royal Horticultural Society had been discontinued in consequence of painful attacks of rheumatism from which he suffered. It was to these long-continued attacks, combined with dysentery, from which he has suffered for the last two years, that he eventually succumbed. His recent withdrawal from public life will cause his absence to be less remarked than it otherwise would have been if he had died in the full flush of his active life, for there was a period of nearly forty years during which he was identified as a steady supporter of every good horticultural work, and which greatly profited by his cool, persistent, business-like help and advice. Mr. Moore was a worthy in a series of worthies who adorned the old Physic Garden of Chelsea. The successor of Fortune, Anderson, Forsyth, and Philip Miller, he maintained to the last the fame of the garden, and that of his distinguished predecessors.

Mr. T. Moore was born on May 29th, 1821, at Stoke-next-Guildford, Surrey, and commenced his gardening career early in life, one of his first

engagements being in Mr. Dickinson's nursery at Guildford, where he was occupied for three or four years. He next went to Mr. Fraser's nursery, Lea Bridge Road, Leyton, in 1839, and then to Park Hill, Streatham, as under gardener. Two years later he was engaged as clerk to Mr. Marnock at the Royal Botanic Society's Garden, and in 1845 Mr. Marnock, having been appointed editor of "The United Gardeners' and Land Stewards' Journal," secured Mr. Moore as sub-editor. In 1848 he succeeded Mr. Fortune as Curator of the Chelsea Botanic Garden, which office he has held ever since—namely, for a period of nearly forty years.

Mr. Moore has been connected with the Royal Botanic Society for a considerable time, having acted as judge at most of their shows, and he was elected an Associate some years since. He was appointed a member of the Royal Horticultural Society's Fruit Committee in 1858, and in the following year the Floral Committee was founded upon the National Floricultural Society, and Mr. Moore was selected as Secretary. In 1866 he, with Dr. R. Hogg and the Rev. M. J. Berkeley, was appointed Director of the Chiswick Garden. In that year also he was Exhibition Secretary of the Great International Horticultural Exhibition and Botanical Congress held in London. Besides acting as judge at many important shows Mr. Moore was Secretary to the Committee formed for instituting the Veitch Memorial, and subsequently became one of the trustees of the fund. He was also Trustee to the Lindley Library, Chairman of the National Anicula and Carnation Societies, and Secretary to the National Dahlia Shows successfully held at the Crystal Palace during the past few years.

Numerous works issued from his pen, some of the principal being the following:—"Cultivation of the Cucumber and Melon," 1844; "Handbook of British Ferns," 1848; "Ferns and Allied Plants," 1851; "Ferns of Great Britain and Ireland" [Nature Printed], 1856, and in two vols., 1859; "Illustrations of Orchidaceous Plants," 1857; "Field Botanist's Companion," 1862; "Elements of Botany," 1865; joint editor of "Gardeners' Magazine of Botany," 1850—2; editor of "The Floral Magazine," 1861; and editor of the "Treasury of Botany," 1866. A new edition of "Thompson's Gardeners' Assistant" appeared in 1878, which was edited by Mr. Moore, and an article contributed by him to the "Encyclopædia Britannica" in 1880 was in the following year reprinted in an enlarged form as an "Epitome of Gardening." In 1862 he was associated with Dr. Robert Hogg in the editorship of the "Florist and Pomologist," of which he subsequently became the proprietor, and that periodical terminated its career in 1885. He became joint editor of the *Gardeners' Chronicle* in 1866, and shortly after his retirement from that office in 1881 he was presented with a testimonial consisting of a silver salver and purse of 300 guineas. Mr. B. S. Williams commenced the issue of his "Orchid Album" in 1882, and has been assisted by Mr. T. Moore and Mr. R. Warner in the editorship of the work, the botanical descriptions being contributed by the former of the two named. Mr. Moore also assisted in the preparation of the sixth edition of Williams' "Orchid Grower's Manual," published in 1885—this being the most recent complete work in which he was concerned.

ONIONS AND THEIR CULTURE.

IN all ages the Onion has been a favourite, and deservedly so, for it is one of the most wholesome and nutritious vegetables we possess. Its merits are evidently well known and appreciated by all classes, as there are few gardens in this country where it is not grown. In the nobleman's garden we find large breaks of the very best soil in the garden devoted to its culture; while the cottar, with equal care and attention, reserves the most favoured part of his little plot for it. Much has been written of late regarding the Onion, the advisability of farmers applying themselves to Onion-growing receiving a share of attention; also the shape of the bulbs, which most judges consider the standard of excellence at the present time—namely, flat, or Pancakes, as some call them. On this latter head I think the remarks of your correspondent, "Thinker," page 513, *Journal of Horticulture*, 9th December, are very significant. I fully endorse his view of the case, considering it but a waste of space to grow these flat bulbs when we have other varieties equal in every respect, and bringing in about a third more weight for the same space occupied. I have given particular attention to the cultivation of the Onion for years, and after careful selection of bulbs and crossing the most reliable sorts in cultivation, I have been fortunate in securing a very superior shaped bulb of exceptional merit, and which is now almost entirely grown in the gardens here. It is a strong robust grower, the bulbs swelling to a great size. I have had six which weighed over a stone of 14 lbs. It is firm in substance, and an excellent keeper. It has been exhibited by me at most of the principal shows of recent years, and has invariably carried off first honours. With this variety I would have no difficulty in tabling hundreds of bulbs in the month of September equal to any that are imported into this country. When such can be done in a district of Scotland, which, though comparatively mild, is notorious for its wet and sunless summers, what might we expect from the most favoured parts of England? I think when the cultivation of this and many other vegetables is better understood and receives the attention it deserves, we shall find less of our capital leaving this country to the pockets of the foreigner. I think we have ourselves to blame for much of the

foreign competition which is pinching us so severely. Our systematic neglect of some of the richest land of the country, coupled with what seems a hereditary feeling of sticking to the old orthodox lines and growing the same crops just because our forefathers grew them, is fast injuring the British agriculturist. A new departure will have to be made, and in this departure I believe the Onion will play an important part. There are hundreds of acres in this country capable of producing as good Onions as any that are imported. A few remarks on the mode of culture that we practise here might be of interest to some of the readers of the Journal.

The ground intended for the Onion crop receives a good dressing of farm manure in autumn before we throw it up into ridges two spits deep, as our soil inclines to be heavy. I much prefer the ridging to trenching, as more surface is exposed to the frost, also in spring the ridges have the advantage, for in some wet seasons the main crop can be sown weeks earlier than if the ground had been left with a level surface, as it generally is after trenching. After the middle of February we never let a chance pass to get in the main crop; but before we have the ground dry enough to allow the ridges to be thoroughly broken up fine with steel forks, it is often the middle of March. Taking advantage of a dry morning we give the ridges a good dressing of soot, also a sprinkling of Thomson's Vine and plant manure, which appears to suit the crop well, both being thoroughly mixed with the soil as the forking of the ridges proceeds. After the break is levelled the surface can still be made finer with rakes, to secure a smooth, shallow drill for the reception of the seed, and if one follows the sower with some fine soil saved from old potting material, and covers the seed slightly, that is all the covering necessary. If the ground be dry enough to allow a light roller to be used it makes a capital finish. No other attention is required till the young plants appear above ground. When they are in this stage they are much benefited by giving them another dusting of soot, and stirring the surface soil with either hoe or rake.

I quite agree with Mr. Ward of Longford Castle, in advocating the use of soot to check the maggot, an enemy that is very injurious to the Onion crop in some soils, and particularly in some seasons after having a cold spring. To guard against such seasons we always sow seed in a few boxes for transplanting, treating the young plants like early Leeks. I have found this to answer well, the crop keeping more healthy and less liable to disease than when sown in the ordinary way. Also the bulbs ripen earlier and keep quite sound till the autumn-sown Onions are fit for using in spring. — DAVID MURRAY, *Culzean Gardens, Maybole.*

READING AND WRITING.

FEW persons in the humbler ranks of life have better opportunities for improving their minds by reading than young men engaged in gardening, especially those who are located in bothies. The majority of these young men are not slow to take advantage of the quietude incidental to these places to indulge freely in reading; but the question arises whether it is carried out with a view to intellectual improvement or mere amusement. If for the latter purpose only it is of little value from an educational point of view, because the mind is not thereby framed to receive impressions of ideas and objects, and convert the same into useful knowledge.

To derive the greatest amount of good from reading books, magazines, and newspapers a course of procedure should be mapped out and rigidly adhered to, with a resolve to read not merely for pleasure alone, but also for instruction. Literature of the highest class only, and there is plenty of such available at reasonable rates at the present time, ought to be read in preference to that of a trashy description. In that of the former, whether of science, art, poetry, or prose, the studious perusal of it will educate and lift the mind up to a higher level, create a broader and deeper sympathy with all good objects affecting the welfare of mankind. There will be no great difficulty in attaining this end if the mind is thoroughly made up to read both for instruction and pleasure. A man thus determined can educate himself in those arts, sciences, and accomplishments that will be of advantage to him throughout life.

There are those who, unfortunately for themselves, do not believe in the teaching power and value of books, and therefore strive to discourage others from taking an interest in the subject. This is a great mistake, entirely due to want of knowledge. The mind cannot be too fully enriched with the stores of valuable information gleaned by a judicious perusal of high-class works. As in searching the earth for gold and silver and other minerals, the greater the diligence bestowed the more successful will the finding of the treasure ultimately be, so will the careful reading and analysis of each sentence yield priceless gems of knowledge which would never be obtained by a careless reader. Pursue this important object, then, throughout life, remembering that the fact of your doing so not only improves your mind and your social position, but also raises you to a higher level of respect in the eyes of your fellow man.

Turning to writing, we may say that unless a man is, or has been a great reader, he cannot become an intelligent and successful writer. The two subjects are so inseparably connected in their common relations to each other that it is impossible to discuss the one without the other. It

has been said with great truth by a distinguished man that conversation makes a ready man; reading a full man; and writing an exact man. Those who write for the Press frequently derive great benefit from doing so, owing to the fact that when engaged in teaching others they are teaching themselves. This proves at once the great value of acquiring a faculty for writing as well as reading. It must not be done merely for the sake of it, but for a higher purpose—the imparting of useful knowledge to those in need of it. To do this successfully, whatever ideas are intended to be conveyed must be clothed in as simple a language as possible. As a valued friend once pointed out to us—"It is to the plain and homely Saxon character of the language used by John Bright and Mr. Spurgeon that their effectiveness and popularity are mainly due"—and so it is and will be in the case of writers on gardening, who embody abundance of useful information in simple language.

Editors are resolute yet generous men, and though they appreciate copy containing well-rounded periods, with gracefully and elegantly woven sentences, they accord a welcome to brief matter, every sentence of which is pregnant with some useful fact or hint. Mere word-spinning should never be attempted; rather communicate what you have to say in a few brief lines, and have the pleasure of being respected alike by Editor and reader.

To young men who are ambitious to appear in print a word of advice may be useful. In the first place, avoid plagiarism as you would a reptile, for depend upon it if you become too intimate therewith you will always feel its never to be forgotten sting. It is an unpardonable act. Do not attempt to write lengthy articles at first, but commence in a small way and you will gradually gain confidence and strength. Write on subjects that you are well acquainted with only, giving preference to practical ones.

In summing up the advantages of these essential subjects to young gardeners, it will appear clearly to most of them that the reading of high class literature with a view to their educational improvement will prove more valuable to them; and further, this fact should be well borne in mind, that no amount of casual reading will elevate the mind of those who practise it. Nothing less than a resolve to grasp and fix the meaning of whatever you read will succeed. Bear in mind, too, that next in importance to the latter is the subject of writing. If you wish to be a good writer cultivate latent talent by contributing brief notes from time to time, or preparing short essays by way of practice. Store your mind full of useful knowledge by taking observation of places, persons, and things, and then, with a well-trained and ordered memory, you will at some time be fully prepared to launch out in the world of letters. Everyone should have some object in view, some ideal to attain, which will eventually be reached by patient plodding perseverance and a determination to succeed. —A YOUNG HEAD GARDENER.

STRAWBERRIES—NEW AND OLD VARIETIES.

DURING the last five or six years we have grown a great many varieties of Strawberries both old and new. Each year we have made a selection and retained only those which have proved most satisfactory in their respective seasons. Few, if any, of the newer varieties have come up to our old standard varieties, hence we have only retained the very best for future trial and experiment. The cultivation of this fruit has been so often written upon that I shall only state a few important points that we have found beneficial. In light sandy soils the ground can hardly be made too solid where the plants are to grow. A good dressing of rich decayed cowdung should always be used for such soils. Here our soil is a strong loam resting on clay, so that we never require to make it so firm for planting, as it always has a tendency to get firm with rains. We use mostly horse manure, with occasionally a good dressing of lime rubbish round the plants placed close under the leaves. This we find an excellent dressing for heavy tenacious soils. Our plantations continue in good condition for three and even four years, but on light sandy soils the beds and plants should be renewed every alternate season. We allow ample room between the plants. Our plantations are mostly 3 feet apart from row to row, and strong-growing varieties 2 feet apart in the rows; others 18 inches in the rows. This we find much better than having them too close together, especially in damp seasons.

Among the older varieties, we grow the following in quantities, viz., Vicomtesse Hericart de Thury, also grown under the name of Garibaldi. This is of French origin, and has been extensively cultivated for years. It is a good grower, with strong healthy foliage, very early, abundant bearer; fruit moderate sized, bright red colour, of excellent flavour. Keens' Seedling, early, and when kept true is still one of the very best. Comte de Paris is considered an improved variety of this. Lucas is a splendid variety of excellent flavour. Sir Joseph Paxton, good for main crop, travels well, good grower, of excellent flavour and appearance. Sir Charles Napier, a very excellent sort, well known, and highly esteemed by many growers for market. British Queen, rather uncertain and tender, but the best flavoured sort grown. Dr. Hogg and Mr. Radelyffe are both hardy, of the same flavour, and often flourish where British Queen is a failure. Elton Pine and Oxonian

are good for late supply. There are many others, excellent and well worth growing where variety is required.

I will now name some of the newer varieties; the descriptions are in some cases the raisers'—that is, when they have not been sufficiently tested here to warrant me in giving an opinion on their merits:—Duchess of Edinburgh (Brown), large flattish fruit, of high colour, and excellent flavour. Pauline (Paul), certificated as an early variety. A. F. Barron (Laxton), a cross between Sir Charles Napier and Sir Joseph Paxton, an extraordinary prolific variety, bright in colour, and of fine quality. King of the Earlies (Laxton), earlier and better here than Black Prince, of much the same style of growth and fruit. Captain, said to be very good. Commander, a very heavy cropper. Noble, large fruit, bright scarlet fruit, appears to be a great bearer. Waterloo (Veitch), fruit large Cockscorn, very dark in colour, and of excellent quality, distinct. Hammonia, fruit large and handsome, glossy orange red, flesh solid, sweet, and luscious, bears travelling well, late. Le Roi Henry (Paul & Sons), a perpetual bearer, small. Belle du Midi (Turner), large globular fruit, strong grower, and heavy cropper. Her Majesty, fruit large, handsome, and well flavoured. President Delacour, a fine strong grower, one of the best, fruit large heart-shaped, colour bright orange and scarlet, flavour excellent. Crown Prince, an excellent sort, colour bright scarlet, firm, and travels well; rather uncertain unless on young healthy plants. Bothwell Bank Seedling is one of the best hardy varieties, being a good grower and bearer, of excellent flavour and appearance, forces well.

I am aware of many others not named here which are well worth growing; at the same time few of the newer varieties are equal to those which have been in cultivation for years, and until a really good one has been proved suitable for the soil and situation it is best policy to depend on our good old friends, such as Keens' Seedling, Vicomtesse, &c., &c. One reason for disappointment in new varieties is that when shown and first brought under notice, they have been grown in rich soil with great care, and when subject to ordinary cultivation they are disappointing, and some varieties will grow and flourish when others are a complete failure. My idea of new fruits is this, plant and treat them the same as old-established kinds, and if they prove superior then you are warranted in extending the crop of the variety under notice. It is a wrong idea to grow new varieties under special conditions. Let anyone try this with Keens' Seedling or Sir Joseph Paxton, &c., get fine healthy runners, plant them in rich soil, and in fact cultivate them with great care and attention, and they will be surprised at the improvement produced.

New varieties that will stand the test of producing finer fruit than any of our old varieties, when treated alike in every respect, are well worth extending, otherwise the sooner they are consigned to the rubbish heap, as I have done with some scores of varieties, the better it will be for the grower.—J. SMITH, *Mentmore, Bucks.*

NOTES ON CHRYSANTHEMUMS.

(Continued from page 574 last vol.)

CONTINUING my notes on the new varieties of the year I may mention one named Mrs. J. Wright, a seedling raised by Messrs. J. Laing & Co., Forest Hill. It is a valuable addition to this class, and as pure white varieties are not very plentiful it is all the more welcome. It has round twisted florets, which renders it totally distinct from any other sort. It should make a fine middle or front row flower for exhibition. Mr. D. B. Chapman, another seedling raised by the same firm, is quite a new departure in the shape of its florets, which are divided at the tips somewhat after the style of a deer's horn in miniature. It is rosy purple in colour, and of good size. Alpha, from the same firm, also a seedling, is likely to make an exhibition flower. It is full, having rounded slightly twisted florets of a rosy purple shaded with white. Snowstorm, as shown by Mr. Davis, is a large-flowered pure white variety, as its name implies, producing blooms in abundance, which will prove an excellent variety for decorative purposes. N. Davis ought to be more grown than it is, being the brightest coloured of all the varieties I am acquainted with. It is the nearest approach to a real red. It is a full bloom, not very large; the florets have a drooping habit, which renders it quite graceful in appearance. Martha Harding, sent out last season by Mr. Stevens, Putney, is sure to make headway as an exhibition flower. Its thread-like petals are golden coloured heavily suffused with bronze; it is full in the centre, and, what is of great importance, the flowers last a long time in good condition. Maiden's Blush, also sent out last spring by Mr. Stevens, has fully maintained the reputation it had then. It has been generally well shown during the season. It

possesses an admirable constitution, producing exhibition blooms in abundance, massive in size and the faintest blush colour, makes it particularly attractive. It bids fair to take the place of Elaine as an exhibition variety. Mrs. Jones, the pale yellow sport from Ethel, now being sent out by Mr. T. S. Ware, Tottenham, is a valuable acquisition to the late-blooming varieties. Its pleasing shade of colour harmonises well with other varieties, and as a late-flowering variety it is excellent. Pelican was sent out last spring by Messrs. Jackson & Son, Kingston-on-Thames. It is a white variety, producing large blooms; the florets are very broad, which curl inwards, giving it a massive appearance. C. L. Teesdale, a new variety in the hands of Messrs. Cannell & Sons, is a creamy blush of excellent quality as shown by him. The above comprise the best of the new Japanese sorts in my opinion.

The number of reflexed varieties has been increased by the addition of three, which are all of the first order of merit, Amy Furze being the first to demand notice; it is a seedling raised by Mr. Coombes, gardener to W. Furze, Esq., Teddington, who has placed his stock in the hands of Messrs. Jackson for distribution, and is particularly pleasing, being of large size, possessing great depth of florets, well up in the centre and of capital form, in fact it is the right type of a reflexed flower, the long time it remains fresh after being cut renders it valuable; the colour is blush, mottled with pale magenta. Temple of Solomon, an old variety brought forward again by Mr. Davis, is a rich yellow of capital form, medium in size, just the kind required to brighten up a stand of blooms composed of dull varieties, of which class many of the reflexed belong to. Elsie in the hands of Messrs. Cannell was several times well shown, its colour a beautiful creamy white, being quite charming; it is of medium size, the true type of a reflexed flower, it cannot fail to become popular even if it were for its colour only.

Several additions have been made to the Anemone class, which are much more favoured by the public than they were owing to the increased number of forms and colours. Citrinus is one of the best, and as its name implies is of a citron colour of good shape. This one belongs to the class now known as show Anemones, and Ratapoi, another new variety sent out by Mr. Cannell also, belongs to the Anemone Japanese section; it is a buff or dull brown colour, having long guard florets with medium centre disc; on account of its colour it should have a place in a not over-stocked class. Another variety belonging to the show Anemone list is La Marguerite, a full flower of medium size, particularly rich in colour, which is carmine velvet.

Mention should be made of the three varieties Chardoncret, Croesus, and Scapin, which form quite a new break in the sections, this one being best termed fimbriated, the tips of the petals being deeply toothed, which gave a pleasing fringed character to the flowers. As shown by Mr. Davis, who received first-class certificates for all, they were all very attractive. No doubt in due time with the object of encouraging their cultivation prizes will be offered for this class.

As a guide to those who contemplate forming a collection for the first time I purpose naming some of the older sorts that have borne out their previous good character for producing flowers of the first class. Some varieties are peculiar in their manner of perfecting their blooms. One season they are produced in large numbers, and possibly the next year the same variety will scarcely afford a single bloom for the exhibition board through some unaccountable reason. Belle Paule is an instance of this peculiarity. Jeanne Delaux, Criterion, Duchess of Albany, Grandiflorum, Marguerite Marrouch are a few which are not always consistent producers of finest flowers in all localities, but it would be extremely bad taste not to grow these because of their failure one season. Some of the incurved section, too, are addicted to this variability, notably Empress Eugénie, John Salter, Lady Hardinge, Eve, both Pink and White Venus, and Mrs. Heale. Extremes of heat or excess of rain in one season over another will be found the chief causes in the general production of the incurved class, but no cultivator will dispense with the above named. My advice to young beginners is this—Grow enough varieties, and seldom it will be found that too many are cultivated. The different varieties of the Queen family are the most constant we have, and should be grown in large numbers.—E. MOLYNEUX.

FILBERT CULTURE.

INQUIRIES concerning Filbert culture occasionally appear in the Journal, and when they do I notice they ask for information in a general way. I therefore purpose devoting a paper describing in detail most of the principal points in their cultivation; and although there may be very little, if anything, new to communicate, the result of a long experience may be of service to younger men who are anxious to learn all they can to advance them in their profession. To begin, then, I may say there is not a great risk to run in the first step towards Filbert culture, because it

is a plant that will bear any amount of severe weather in its dormant state, neither are the plants expensive, and they will grow in almost any sort of soil so long as it is not a stagnant one, but like most other things they have their favourite spots and must be judiciously managed in some particular points, to which I will presently allude. Some of the most successful Filbert grounds in Kent are situated on a range of hills running east and west, commanding miles of uninterrupted view of the Weald of Kent and Sussex, where the soil is a good sound loam, rather shallow, but resting on a foundation of marl or sandstone. These grounds produce the famous Filberts and Cob Nuts, so much in request, and their position indicates that the Filbert likes a high and dry situation, not, perhaps, so much from the advantage of soil as for the favourable elements such positions afford for the natural distribution of pollen at flowering time, which happens in their case to be very early in the year; therefore, if a plantation of Filberts is to be attached to a garden for home use, choose the highest and driest spot consistent with other surroundings, and if the land has been previously cultivated not much other preparation will be needed beyond breaking it up and then working down again before planting.

Stations for the plants should be set out; 10 feet from tree to tree and row to row is a good distance for a plantation, but if only a single row 8 feet will answer well. In selecting the trees those inclined to a branching habit are to be preferred, and with a clear stem of sufficient length to allow a clear foot above ground after planting in order to check the production of suckers. Mix a little decayed manure in the soil at planting as an assistant to a good start—the trees will need treading in firm. About a month after planting the first pruning can be done, which may be a heading down of all the principal shoots, say one-third of their length, and the spray wood likewise shortened. The season following little will be needed beyond keeping the ground clean and removing any ill-placed shoots, but the next season's pruning will have to be with a view to the shape of the tree. This may be a matter of taste with some, but I have found the cup shape to answer all purposes; consequently the centre of the tree should be kept clear of wood, and the best outside shoots trained at equal distances, of which from five to eight will be ample to form a good tree, and will allow sunlight and air to freely circulate among the branches, making sure of this is one of the good points in Filbert culture.

During winter when the leaves are off some addition should be made to the soil, not necessarily strong manure, but decayed vegetable refuse, or in fact anything that will improve it. After this the trees will be getting well in hand, and pruning from time to time will be the principal work. This operation should not take place till blooming time, which is generally about February, when both male and female flowers will be out at one time. First cut out too strong or ill-placed growths, then thin the centre of the tree; afterwards examine the whole tree, and thin out some and shorten others of the fine or spray growth in a regular manner, paying careful attention to the wood bearing female flowers, and, if possible, leave sufficient male blooms or catkins on every tree to fertilise them. In some seasons, however, there is a difficulty in this through the scarcity of catkins, while in some plantations one part will have plenty and the other none, therefore means must be taken to equally distribute these by tying a few sprigs of them in each tree when they are about to burst. I used to know a Filbert orchard in Kent that scarcely ever produced sufficient male flowers; this was thought to arise from the plantation being surrounded by high Walnut trees, and therefore too much confined; but we usually had a fair crop nevertheless, because for five seasons in succession I was sent round the hedgerows of the Hop gardens to collect the branches of catkins from the common Hazel nut, and tie some on each tree for the wind to circulate the pollen. It was always noticed, however, that the best crop and finest Nuts were on the outside trees, the interior of the orchard having weaker trees of more straggling growth. This shows the partiality of the Filbert to light and air, so that I have come to the conclusion if I ever required to grow Filberts I should prefer planting a single row of trees round a fruit orchard, or a single row in any open situation; the trees might then be put closer together, say 8 feet apart, and if trained as stated above, and about 6 feet high, they would prove both ornamental and useful.—THOMAS RECORD.

RAISING GLADIOLI FROM SEED.

ALTHOUGH Gladioli have been known and cultivated in this country for over 200 years, very few appear to have entered into their cultivation with much spirit until within the last thirty years; and even at this present time I believe there are very few who take the trouble to save seed and increase their own stock, but content themselves by purchasing corms by the dozen or hundred from the nurserymen, and so keep plodding on from year to year with their limited numbers. It is just as simple and easy to raise a good stock of Gladioli as it is to obtain a good stock of Peas or Potatoes. As with everything else, it is necessary to have a little stock to start with. A hundred corms of select varieties are quite sufficient to get seed from to stock the largest of gardens. Have a piece of ground well trenched, and dressed with either cow or pig manure early in the autumn, and plant the corms either in lines about 18 inches apart, or in a bed, as may be most convenient or agreeable to the cultivator's taste. If the ground is very stiff it would be well to have some good light soil, say about a spadeful,

for each corm to start in. The second week in March is a very good time to plant them. When they have commenced growth keep the ground well stirred and free from weeds, and in dry weather give them frequent waterings of liquid manure to help them form strong spikes, which, as they advance, will require staking and tying to prevent the wind breaking them down. As the flowers expand, if there is a hive of bees in the neighbourhood, they will do the work of hybridising; or if time is not much of an object with the cultivator he may feel disposed to do it artificially with a camel-hair brush. The enthusiast may consider it necessary to protect his spikes so operated on from the effects of rain, but I think this is quite unnecessary. Some varieties seed very freely, whilst others are most obstinate. However, a crop of seed from the majority is certain, provided they are well fed with liquid to help them swell their seed pods. No fixed date can be given for harvesting the seed. There is only one common-sense way of doing it—i.e., gather it as it ripens. The pods will burst when ripe, and these should be examined three times a week and cut as they burst, laid on a sheet of brown paper, and put in a dry vinery or some similar place for a few days, and then cleaned and stored away till the following March. The old corms should be lifted when their growths die or before severe weather sets in, dried, and stored away in a shed or room safe from frost.

Gladioli like a change of ground—or, in other words, they do not succeed well on the same ground year after year; so select another piece, and have it well trenched and manured early in the autumn for the following year, and plant as before advised. Let us now return to the seed, as that is the principal object of this letter. Most soils will grow matured corms with a certain amount of satisfaction, even under very ordinary management; but to succeed well with seed a good friable soil is indispensable, and this should be well drained, either naturally or artificially, to carry away all stagnant or superfluous moisture which may be caused by the constant waterings necessary during the growing season. Trench and manure the ground in the usual way, except in securing some of the best decayed dung available, and keep it near the surface to feed the seedlings immediately they begin to root. I sow our seed in a well-prepared border in the kitchen garden, and as we are close on a gravel subsoil we can water our plants freely without fear of stagnation. I sow the seed in drills about 8 inches apart (just wide enough to work a Dutch hoe with freedom) about the middle of March, if the weather is favourable; if not, I leave it to the end of March. Immediately the seedlings appear keep the ground well stirred with the Dutch hoe to keep down weeds. Immediately the ground seems dry and sweet, give them a good watering with liquid manure. Even at this early stage of growth they will take liquid twice or thrice a week if the weather is dry, and as they advance in growth they will take it more abundantly—in fact, the only attention they will require will be a perpetual stirring of the soil to break the crust formed by watering, which will also keep down weeds and give abundance of liquid manure, and if this is persevered in I am quite satisfied the cultivator will be rewarded with a few spikes of flower in the same year the seeds are sown; at any rate, the writer has flowered them the first season from seed, and I see no reason why other cultivators cannot do likewise.

I remember, several years ago, paying a visit to my friend Mr. Kelway's celebrated Gladiolus establishment at Langport. When I arrived he expressed his pleasure in seeing me, and added, "I have a treat in store for you—a field over a quarter of a mile long of Gladioli in full bloom." And it was a sight well worth going to see, and this was only one of the many fields he had at that time in full bloom. While enjoying this great feast of Gladioli bloom, Mr. Kelway remarked, "I am the only successful Gladioli grower in this country—i.e., a cultivator who grows the plant from seed to maturity in quantity in this country," and I thought he well deserved the palm. I noticed his seeds were all sown in drills, and he told me how long it took to mature the corms to flowering size, and feeling as I did so deeply impressed with the sight of acres and acres of their flowers, I determined to try my hand in working up a stock. Accordingly I secured some good named varieties to start with, saved seed, sowed it, and grew the seedlings in the manner I have described, and, as I have already stated, succeeded in flowering some of the seedlings in the same year they were sown.—J. OLLERHEAD, *The Gardens, Wimbledon House, S.W.*

(To be continued.)

NON-VENTILATING SYSTEM FOR CUCUMBERS.

AT page 514 of the preceding volume of this Journal "A Thinker" asks if I can inform the readers of the Journal whether Cucumbers are grown on the non-ventilating system by the growers at Worthing, and from which district more early Cucumbers are sent to Covent Garden

than all other districts in England put together; at least, the salesmen says so. It would gladden the eyes of many a gardener, and take the "conceit" out of some, to see the miles of vineries, Tomatoes, and Cucumber houses, and managed by men who started life differently from a gardener's. Certainly, the Worthing growers are blessed with a climate second to none in Britain, and an idea of it may be gained when I say that in the open Fig trees grow to the size of standard Apple trees and bear abundantly. Cucumbers are not grown at Worthing on the non-ventilating system, as, upon inquiry of the largest growers, I was informed that the plants become worn out too soon, but by giving air judiciously and only when it was needed according to the outside temperature, that the plants continued in health and free bearing much longer. That, I hold, is the best system for private gardeners to adopt, as we want a steady supply.—A. YOUNG.

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GIANT ORCHIDS.

ORCHIDS vary greatly in size, but though there are many of minute dimensions there are comparatively few that exceed 10 feet in height. The Vandas and Vanillas are the best known of the taller-growing Orchids, but the Genus Galeola (no member of which is in cultivation) contains the giants of the family. *G. altissima* is found in Java, and has been described as attaining the height or length of 120 feet. Another species named *Galeola Ledgeri* is a native of Australia, and though smaller than the first mentioned yet its stems reach a remarkable length. A coloured illustration of this plant was given recently in Fitzgerald's "Australian Orchids," where it was described as the largest known Orchid in Australia, "found only in dense scrubs on the east coast, and not farther south than the Macleay River, on the banks of which, and on those of the Bellinger, I observed it clinging on the Rosewood (*Dysoxylon Fraserianum*) and other trees peculiar to the tropical forests. It attains a height of 30 feet, and one spike of flowers measured 6 feet in length and 3 in breadth. This Orchid adheres to the tree (from the base of which it grows) by attaching hand-like roots which grow from the nodes and opposite to the spikes and spikelets, which form the large dependent



Fig. 1.—*Cypripedium callosum*.

panicles of waxy yellowish flowers. Though originally named *foliata* it has no true leaves, but only leaf-like bracts at the nodes, and for this reason and in honour of Mr. Ledger (who first introduced the Llama into Australia), Baron F. Von Mueller requested me to change the name he had originally given to that of *Ledgeri*, his genus *Ledgeria* being reduced to a synonym, but the Baron has since included the species in his census under the original name of *foliata*. It is rather curious that specimens of this Orchid were found by Mr. Fawcett at Richmond River at the same time as he found the smallest Australian Orchid, *Bolbophyllum minutissimum*, of which a number of full-sized plants can be placed in the space of an inch, an extraordinary contrast with the *Galeola*.

CYPRIPEDIUM CALLOSUM.

This *Cypripedium* is a recent introduction from Cochin China, and has within the past month flowered in several collections. Mr. W. Bull exhibited the first plant at South Kensington on December 7th 1886, when a first-class certificate was awarded for it, but if the meeting had been a day or two later F. G. Tautz, Esq., Studley House, Goldhawk Road, Hammersmith, would have had an opportunity of sharing the honours, as a fine flower expanded in his collection from which the illustration (fig. 1) was prepared. *C. callosum* resembles the well-known handsome *C. Lawrencianum* in general appearance; the dorsal sepal is

broad, white at the margin, and regularly streaked with purple. The lip is small and neat, purplish, the petals greenish at the base, with a few scattered tufts of black hairs on the upper margin, and purplish at the tips. The leaves are marbled, somewhat like *C. Lawrencianum*, but not quite so distinctly.

AUSTRALIAN DENDROBIUMS.

Some prejudice has existed against the Australian Dendrobiums amongst certain growers, possibly because most of the species have hitherto been found rather difficult to cultivate satisfactorily, but their requirements are now better understood, and with greater success will come an increased popular favour. Several species from the great southern land are very beautiful when in their right condition, and the flowers last for a great length of time either on the plant or cut and placed in water. *D. gigibum* is very useful in this respect, and is now frequently seen in robust health, Mr. Cypher of Cheltenham being very successful in its cultivation. The flowers will keep fresh in water for over a month. We have spikes now that were placed in a vase more than three weeks ago, and only one flower, the lowest on the spike, has faded, and that was slightly injured; the others are quite as fresh and bright in colour as the day they were cut. The rosy tint is a very pleasing one, and is suitable for arranging with many other flowers. *D. superbiens* is another handsome species, and is well grown by Mr. Cowley, gardener to F. G. Tautz, Esq., Hammersmith, in a stove. A plant there has made a pseudo-bulb $2\frac{1}{2}$ feet long and proportionately stout, the old imported pseudo-bulb not exceeding a foot in length. This plant has borne two racemes of eleven flowers each, and when shown at South Kensington recently a cultural commendation was awarded for it. Mr. Cowley seems to find no difficulty in growing this Dendrobium. It is in the same house as the *Phalænopsis*, evidently enjoying plenty of heat and moisture, with free exposure to sun. Some idea of the capabilities of this plant can be formed from the fact that a specimen has been grown in Australia that was in flower for thirteen months, bearing twelve racemes at one time of fifteen flowers each, which lasted three months. The handsome but scarcer *D. Phalænopsis* does not seem to be so free, but it is a charming species, and another recently brought into notice—viz., *D. MacFarlanei*, is rather attractive.—L. CASTLE.

GRAPES WITHOUT HEAT FOR THE MILLION.

(Continued from page 582, last vol.)

FURNISHING.—The back wall is of great importance in the lean-to house, in the case, and under the coping or projecting eaves. In flat-roofed vineries the back wall is no good, through the Vines on the roof overshadowing it. It is, therefore, a question of light, so we must not cover the roof if the back wall is to be utilised, then we get all the sun in front and all the warmth the wall absorbs to give out in cold weather and at night. To furnish the wall, plant Chasselas Vibert, round large berries, golden amber when ripe, flesh tender, juicy, and well flavoured, capital grower, and earlier than Royal Muscadine; Esperione, round large berries, purple or black, flesh very juicy and rich in flavour, free grower, and great bearer; Early Smyrna Frontignan, round, medium sized, amber, juicy and rich, not nearly so strong in growth as the other two, and is not advised for any but lovers of the Frontignan flavour, as they are not profitable from a sale point of view.

In the case the best varieties are Foster's Seedling, berries not large, but above medium size, oval or roundish, sweet, and nicely flavoured; Black Hamburg, roundish berries, large, juicy, and red; Buckland Sweetwater, round large berries, pale amber, juicy and sweet; Trentham Black, oval berries juicy and rich. Chasselas Vibert and Esperione can be added—half-a-dozen of the very best Grapes for our purpose. Foster's Seedling and Trentham Black will keep some time.

For the house grow all the preceding, with Madresfield Court, large berries, rich, superb, with slight Muscat flavour; Black Muscat (Muscat Hamburg) medium-sized, oval berries, juicy and rich; Black Prince, oval, juicy, and good; Gros Maroc grafted on the Black Hamburg is superb in appearance, and wants no more heat than a Hamburg; Golden Queen, oval, amber, flesh firm and richly flavoured; Golden Champion, very large berries, pale yellow, flesh firm and very juicy; General della Marmora, round large berries, flesh tender, sweet, and good, very like Buckland Sweetwater; Ferdinand de Lesseps, medium-sized berries, deep amber, flesh juicy and peculiar flavour; Chaptal, large round berries, white, juicy and sweet. Frontignans:—Early Smyrna, Early Auvergne, Early Sauzur, Primavis Frontignan, and Tokay Frontignan; Early Silver Frontignan has large berries, and though it, like White Frontignan, will ripen in a cool house, it is the better of heat. The Frontignans are to connoisseurs the choicest of Grapes, and should be grown on a part of the wall, or have a division of the case or house to themselves, as they do not grow so strongly, and require a more calcareous soil than the freer growing varieties. Madresfield Court and Golden Champion are given to speck and spot respectively, but that can be overcome by keeping the house freely ventilated when ripening.

SOIL.—Any siliceous or calcareous loam will grow Vines. A good bodied loam, interspersed with gravel and sand, is better for the freer-growing sorts, in fact all but Frontignans than a very light soil. If there is a bed of gravel or rock under, so that water never lodges within 3 feet of the surface, it is all that could be desired. Trench it 2 or 3 feet deep as the soil admits, adding about a fifth of short stable or farmyard manure. If there is a deficiency of sand and lime add a sixth of old mortar rubbish freed of pieces of lath or other wood, and about a twentieth of crushed bones, the whole well incorporated. Nothing further is wanted except to loosen the soil or "brash" at the bottom of the trench, so that the water can pass away freely. Soils that have not natural drainage should have 3-inch drain tiles put in at 3 to 4 feet depth, with proper fall and outlet to carry off the superfluous water. Nine out of ten soils in their natural state would grow much better Grapes than the costly borders that are made for them. If the soil is light and shallow deepen it by bringing in fresh loam so as to get a depth of 24 to 30 inches; if medium textured add some lime rubbish, and where inclined to be stiff a free admixture of lime rubbish, brickbats, &c., will make it open. A Vine soil needs to be well drained, open or porous, so that water can pass into and through it freely, and then it can be freely supplied with surface dressings and liquid manure. Never seek to make a Vine border if the soil is suited to it naturally, or by slight additions can be made available. With a stiff wet soil on a cold subsoil the case is different. On such instead of excavating raise the border. There may be equal reasons for keeping up some soils that are not unsuitable only through water lying near the surface, and the difficulty of securing an outlet for drains. The whole of the border, drainage as well, may be above the surface, forming a terrace a yard high. Place drain tiles to carry off the superfluous water, a foot of rubble on a bottom sloping to the drain, the roughest of the rubble at the bottom and finest at the top. Thirty inches depth of soil, the top 3 or 4 inches thickness of a pasture where the soil is a light or medium textured loam, chopped up rather roughly, adding a sixth of old mortar rubbish and a twentieth of crushed bones, the whole well incorporated, and placed together firmly when in good working order. No manure need be added, as it will be rich enough through the decay of the fibre of the loam. The width of the border need not exceed 4 feet for a wall or case; for a house it may be the width of it if Vines are planted in front as well as against the wall of a lean-to, or on both sides of a span, confining the roots to the inside, and when that is occupied with roots the border can be extended outside. Wide deep borders only become sodden and sour. If the border is raised its slope may be grassed over, or it may be made gay with rock plants. The outside border need not exceed the inside, or in a span half the width on each side.

PLANTING.—Spring is unquestionably the best time to plant. The Vines should be in pots kept cool and dry, the pots protected from frost. The canes can be cut back to the length required. For walls, say 9 to 12 inches, the former preferably, as the shoots are wanted at a foot distance from the soil, and they must be originated lower, so as to get them with a nice bend instead of an abrupt one. When the Vines are on the move turn them out of the pots, disentangle the roots, spread them out evenly, cover with fine soil, and avoid, as is a common practice, burying the cane or planting low, just covering the roots with soil, and the generality of the roots being 3 inches beneath the surface they are deep enough. Follow with a watering of tepid water, and mulch with a couple of inches thickness of short manure. If the canes are wanted to reach to a certain height before bearing growths are needed, they may be left the requisite length at pruning. The Vines in the case of houses should be planted inside, and so that the rods and growths can be trained to the under side of the trellis. In the case of entrances or corridors which preclude a border inside the Vines will need to be planted outside and taken through an aperture in the wall or side, which should be large enough to admit of a stuffing of hay, and the cane outside must be wrapped in soft haybands. Keep the Vines in planting about 4 inches clear of the wall. In respect of distance apart at planting, that depends upon the space. A Vine will cover the largest wall or fill the largest house in time. It is, however, so tractable that it may be fruited in a 6-inch pot. A Vine will cover a house end in perhaps a dozen years. More Vines will do it in less, and so on as regards the house front, the wall, and house. Pigmy and monsters have their advocates; a medium is, perhaps, best.—G. ABBEY.

(To be continued.)

FUCHSIAS IN WINTER.

THE Fuchsia is still a favourite flower in the majority of gardens especially with amateurs, and when liberally grown it makes a good display throughout all the longest days, but it is not a good winter-

flowering plant, and it is best at rest then. When Fuchsias are planted out as wall or pillar plants the leaves gradually fall from them in the autumn until they are destitute of foliage, and when this is the case they should be kept dry at the roots and the shoots be cut well in. This is a good time to prune plants of this kind, as there is little danger of their starting into growth again so long as the roots are kept dry, and they should not be watered until the spring. The object in cutting them now is to trim off all the wood on which there may be any insects, and also to make the plants appear tidy, as the long branches formed during the summer are not by any means ornamental if left bare and projecting.

Plants in pots have been well exposed to the sun and air during the autumn to render the wood brown and hard. When the branches are leafless the plants may then be stored away for the winter, and they may be turned out of the plant ranges, as they will keep equally well in a shed or cellar, the conditions being to prevent frost from reaching them and not giving them any water. Some are inclined to water them, and think they would die if allowed to become very dry; but this is not correct, as they would suffer more from being kept damp at the roots. Some of our plants in 6-inch and 8-inch pots will have no attention until February or March next, when they will be brought into the light and a little heat and thoroughly soaked with water. This will induce them to burst into growth vigorously.—M.



IN reference to the remarks of "A Thinker" in last week's Journal, we are requested by Dr. Masters to state that the reports which have appeared in various organs of the press convey a wrong account of what he said at the POTATO TERCENTENARY. Dr. Masters says, "I saw some wonderful statements as to what I was supposed to have said, but I did not think it worth while to contradict them, but when they appear in the 'Journal' it is another matter." The report that Dr. Masters recognises as correct will be found at page 747 of the last volume of the *Gardeners' Chronicle*.

— MR. JAMES DOUGLAS, Great Gearies, Ilford, Essex, informs us that an important meeting of the Committees of the NATIONAL AURICULA SOCIETY (Southern Section) and NATIONAL CARNATION AND PICOTEE SOCIETY (Southern Section) will be held in the Conservatory of the Royal Horticultural Society, South Kensington, at noon on January 11th, to consider suggestions that something special ought to be done for the branch of floriculture represented by the above Societies on this the jubilee year of Her Gracious Majesty Queen Victoria; to receive the statement of accounts which was not ready at the general meeting in December.

— THE results obtained in the Horticultural Congress organised by the NATIONAL HORTICULTURAL SOCIETY OF FRANCE in 1885 and 1886 have determined it to hold a third in 1887. Like its predecessors, this Congress will be held in the month of May, at the same time as the General Exhibition, and the exact date will be indicated later. To assure the success of the Congress, and in order that it may be as fruitful as possible for science and practical horticulture, the Society earnestly invites its members, as well as all persons interested in horticulture, to either join it as simple adherents or with the object of taking part in its work, bearing in mind that no subscription may be collected. Arrangements will be made for obtaining, as in preceding years, from the French railway companies, a reduction in fares. M. A. Blen, 84, Rue de Grenelle, is the Secretary of the Society.

— MESSRS. SUTTON & SONS have now a remarkably beautiful display of PRIMULAS in their Portland Nurseries. Numerous varieties, including some admirable novelties, are represented by well-grown plants with healthy foliage, and of compact vigorous habit, bearing substantial trusses of large brightly coloured or clear pure white flowers. The strain is a very good one, and is the result of a long period of careful crossing and selection.

— WE have received several communications concerning the DAMAGE TO TREES AND SHRUBS caused by the recent heavy snow-storm, and from them the following note from Mr. G. R. Allis, Old Warden Park, Biggleswade, is selected as representing the general result:—"Sunday, 26th December, was dark and foggy. A drizzling

rain set in about 10 A.M., and continued more or less all day. At about 6 P.M. the wind veered from south-east to north-east. This change was followed by a fall of snow with a rise of wind. Snow continued to fall during the night, and at daylight next morning the average depth was 10 inches. Owing to the weight of the snow on the branches of trees and shrubs a great deal of damage has been done, the trees in the park have suffered, and a scene of desolation meets the eye at every point. In the pleasure grounds evergreens have suffered considerably, such as Arbor Vitæ, Cupressus, Aucubas, &c., some lying nearly flat on the ground. It is grievous to see large branches of Cedar of Lebanon, aged Evergreen Oaks, and other choice shrubs blocking the walks almost at every turn. I have not seen anything to equal the damage done to trees and shrubs here since the memorable snowstorm of Good Friday, 1876. Deciduous trees, considering their leafless state, have suffered more in proportion than evergreens. We usually go over the choicer kinds of shrubs, when heavily weighted down with snow, with a light pole, and gently shake the snow off them. The limbs will gradually rise again. The operation requires to be lightly done, or it is apt to do more harm than the snow. Those readers of the Journal who have had but little experience in selecting and planting evergreens, such as Arbor Vitæ and Cupressus, &c., will do well to select plants with single stems, which stand a better chance than those with two or three leading shoots. The water from the rain and snow, as measured from the rain gauge, is equal to 1.26 inch of rain."

— SINCE our correspondent wrote the weather has changed several times. On the 1st and 2nd inst. 16° to 25° of frost were registered; this was followed on the 3rd inst., by a rapid thaw and heavy rain during the greater part of the day, being succeeded at night and on Tuesday morning by a heavy fall of snow, from 4 to 6 inches deep.

— WE are desired to mention that the LECTURE ON PEARS was given by Mr. T. F. Rivers at the Horticultural Club on Tuesday, the 7th of December last.

— GARDENING APPOINTMENTS.—Mr. Thomas Carling, for the past nine years gardener at The Hollies, Acrefield Road, Woolton, Liverpool, has been appointed gardener to George Cope, Esq., Dove Park, Woolton, Liverpool; and Mr. William Hodgins, foreman to Mr. Kipps at Walton Lea, near Warrington, has been appointed head gardener to A. M. Smith, Esq., Bolton Hey, Roby, Liverpool.

— A CORRESPONDENT sends us some small branches of the curious COLLETIA SPINOSA, closely studded with its white bell-shaped flowers, rather pretty and slightly fragrant. *C. spinosa* is not quite so strong as *C. cruciata* and has smaller angular flattened spines, but it is quite formidable enough, as it is dense and closely branched in habit.

— THE issue of GLENNY'S ILLUSTRATED GARDEN ALMANACK FOR 1887 (London: Ward, Lock, & Co.) contains the ordinary calendrical matter, several articles on special subjects, and lists of new plants, fruits, &c., with illustrations. It comprises 174 closely printed pages.

— THE popularity of DAFFODILS has increased greatly in the past year or two, and no doubt the low prices at which many beautiful varieties are now offered has had much to do with the extension of general favour. They are all now being planted largely in many gardens, both in borders and on turf, amongst trees, on slopes, or in any suitable position where their flowers will produce a welcome display in spring. As will be seen from Messrs. Barr & Sons' clearance sale advertised in this Journal, the prices now admit of some varieties being obtained in hundreds at a moderate outlay, and such are valuable for naturalising in the so-called "Wild Gardens."

— "S. P. E. S." writes, "Amongst all the prettily veined leaves that one sees most frequently, not excepting those with which lovers of plants are familiar, few are so exquisite as those from the fruiting branches of the FICUS REPENS. Compared with those ordinarily borne by this plant, they are as unlike as well can be; in fact, so much so, that they might easily be taken by many to belong to some totally distinct plant, or otherwise fail to be identified at all. A vigorous shoot will produce leaves measuring as much as 4 inches in length and 2½ inches in breadth, the upper surface being smooth and of a pleasing glistening deep ivy green. The under sides are of a much lighter shade, and it is on this side of the leaf that is exhibited the interesting and surprising elaborate arrangement of its veins, which are seen best when holding a leaf to the light and viewing it from the reverse side. A lead

rubbing of the leaf can be easily and satisfactorily made, as the enclosed one will show. Some of those who may possess the plant may not have noticed, or even suspected, the interesting sight that awaits them, and which they can at any time witness for themselves by simply turning over a fresh leaf."

— THE finest of all JAPANESE BOTANICAL BOOKS is the *Honzo Dsufu*. It is also from a scientific point of view the most valuable, inasmuch as it contains excellent coloured figures of no less than 1500 species of Japanese plants, of many of which there are no other published representations. Franchet and Savatier, in their "*Enumeratio plantarum in Japonia sponte nascentium*," quote throughout the copy in their possession, which was not, however, quite complete. It is in ninety-six volumes, or rather livraisons, and is rare even in Japan. It was prefaced in 1828, but only the first six livraisons have ever been printed, and the rest only exists in hand-made copies. It has long been desired to obtain a copy for the library of the Royal Gardens, Kew, and this wish has at length been gratified by the kind liberality of Mr. Tokutaro Ito, grandson of the well-known Japanese botanist, Keisuke Ito. Mr. Ito is now studying botany at the University of Cambridge, and lately communicated a revision of Japanese Berberidaceæ to the Linnean Society, of which he has recently been elected a Fellow. The Kew copy of the *Honzo Dsufu* is probably the finest to be obtained in Japan. It came from the library of Senator Tanaka (himself a distinguished botanist), who, with extraordinary generosity, placed it at the disposal of Mr. Ito for presentation to Kew.—(*Nature*.)

ROSE-GROWING FOR BEGINNERS.

I WILL commence by saying that the following remarks on Rose culture are not intended to be funny, neither have I any wish to teach my grandmother, or anyone who knows more than I do myself. My sole aim and object is to give plain instructions to those who, having had no experience, know nothing, for after all, and in spite of everything that may be said to the contrary, experience is the only safe guide to what may be possible on any given soil and in any given climate. For instance, on some dry warm soil in the northern or midland portions of the United Kingdom the Tea Rose might be successfully grown out of doors; while in the far south or west, on a heavy wet cold clay, all attempts to do the same thing might end in dismal failure. It is here that experience and a general knowledge of the habits and requirements of the Rose come in useful.

I am of opinion that many promising Rose growers give up in consequence of beginning wrongly. They buy Roses, plant them wrongly, prune them wrongly—the result is, that disheartened by their want of success in their first attempt they abandon Rose-growing altogether. Now if these faint-hearted ones only started in the right way, and went on in it, many of them would become in all probability successful growers and prizetakers, to say nothing of adding considerably to their own health and happiness, besides gratifying their friends with rich harvests of lovely blooms. There is one other point I wish to mention. In the instructions I intend to give in these papers there will be nothing but what I have personally proved to be possible. If I wander into theory, or quote opinions from standard authorities—I may do both as I go along—I shall be careful to give notice of the fact, and so prevent mistakes.

On the subject of Rose-growing the public seems to me to be divided into two great sections or classes. One section is composed of those who think that it is only necessary to buy Roses, plant them, and leave them to take care of themselves. The other section consists of those who think that Rose-growing is so difficult that they dare not attempt it. I need hardly say all these people are mistaken. There is one thing the Rose grower must never expect, no matter how successful he may be. He must never expect anybody to give him any credit, however bad the soil or impure the atmosphere. People will come and admire, will say "How lovely, &c.," and then they will coolly say, "What splendid soil you must have here," or "I suppose your air must be very pure," or "What a clever gardener you must keep," and an extra knowing one may say, "I suppose, after all, it's only a question of money." In Rose-growing, as in most other things, success, like virtue, is its own reward.

This is no royal road to perfection in Rose culture; it is not difficult to attain to respectable mediocrity, but to get anywhere near the top of the tree a man must be in earnest. Messrs. Cant, Paul, Turner, Cranston, Pemberton, Hall, and a good many others are all in earnest, and while these men are all struggling and strain-

ing every nerve to be first at the goal, does any man think he can possibly have a chance of a place, while he, metaphorically speaking, stands with his back to the wall and his hands in his pockets?

Given fairly pure air and fairly good soil—the latter is within the reach of all, for it can be procured from a distance—good Roses may be grown. Many persons have no wish to go beyond growing blooms for bouquets, and these people may be very easily satisfied. But there are others whose aspirations do not stop here; they want to become exhibitors, to compete at the shows, to try their strength against all comers, and, if possible, to carry off the prizes. These have a harder task to face, and they must not expect to sweep all before them at the beginning. It takes at least two or three years of careful observation and hard work for a man to educate himself up to a fair knowledge of Rose culture. Had I said nine or ten years I should perhaps have been nearer the mark, but much depends on the individual. Even the setting up of a box of blooms at a show, to make the most of them requires a lot of practice. Frequent attendance at the great London shows will give the beginner an idea of how well this may be done, while frequent visits to the little local shows held round about the suburbs of our large towns will give him an idea of how badly it can be done.

Another thing I wish to impress on my readers is that I should not like for a moment to pretend that there are no other ways of arriving at perfection in Rose-growing except those that I indicate. The experience of any one individual must necessarily be very limited, and soils, climates, and other conditions vary so much that it would be impossible for me to frame instructions suitable for everybody. The beginner may be sure of one thing, and that is, that if he take a real interest in the study or cultivation of anything, be it a Rose or a Cabbage, that before long he will make many discoveries for himself, and improve upon written and printed advice in many ways.

In arriving at the conclusion of these introductory remarks, I should like to say that while I shall endeavour to make each of the following sections as complete as possible in itself, I recommend the intending Rose grower to read the papers throughout, if he have the necessary patience, I on my part pledging myself to be as brief as possible; but if I do repeat some statement now and again, I trust he will forgive me, as I prefer to say a good thing twice rather than run the risk of omitting it altogether.—D. GILMOUR, JUN.

To be continued.)

POPULAR APPLES.

(Continued from page 565.)

CULINARY VARIETIES.—We rarely meet with Carlisle Codlin, yet it is one of the best varieties for garden culture that can be named. We have two good sized bushes of it, and very rarely fail to secure good crops. It is fit for use early in August, or when about half grown, and will keep good to the end of November. It is not nearly so vigorous as the Keswick Codlin, but in other respects, in my estimation, it is decidedly superior to it. The Keswick Codlin, however, is still a most reliable and generally good early sort, and seems to do well under almost any conditions. Lord Suffield may be described as an improved and much larger form of Keswick Codlin. It is wonderfully prolific on all kinds of trees, and apparently in all localities. I believe I may safely term it the most profitable early variety in cultivation. It usually wins all the prizes at the August shows, and it is equally popular with the cooks and fruiterers. Duchess of Oldenburgh is another favourite of mine. On the Crab stock it forms a good bush or standard, and is more reliable than any other variety cultivated here. When ripening, or ripe, it is very attractive in appearance, but though also classed as a dessert variety, it possesses too much acidity to please most palates. It is at its best during the month of September, and I should say it will eventually become a profitable variety for the markets. Red Hawthornden or Greenup's Pippin is quite distinct from the old Hawthornden, the latter fast becoming cankered out of existence. With us it is of free healthy growth, but our bush trees do not bear so well as I have seen rows of standards in the open Essex market gardens. It is a handsome saleable variety, possessing, too, the good qualities that always commend themselves to market salesmen—viz., the fruit is available for either dessert or culinary purposes. It is in season during November and December. Jelly Beggar is found a very profitable early market variety, and should be planted by all who wish for an early return for their outlay. It is singularly precocious, the fruit being of a medium size, and in season from August to October. A friend of mine has long rows of standard trees of this variety, but I have not seen it in any private garden.

Stirling Castle should take the place of the old Hawthornden, which it somewhat resembles. It forms a good espalier, bush, or standard, and is therefore particularly well adapted for garden culture. It is a sure bearer, and when circumstances are favourable, as at Rood Ashton, Wilts., very fine fruit is obtained, Mr. Miller usually taking the first prize at the Bath September Show with it. It seldom keeps good later than September. Emperor Alexander is another popular market variety, and is equally as profitable for home use. It forms a capital orchard tree and a

good bush, being also a handsome show variety, well adapted for cordons on a dwarfing stock. It is of large size, highly coloured, fit to eat, and a good cooker; in season during October and to December. Peasgood's Nonesuch should be grown in every fruit garden or orchard, being of good fruitful habit, amenable to any kind of training, while the fruit is usually very large and handsome, and good for either dessert or culinary purposes. In season from October to January.

Although I have enumerated a fairly long list of early and second early varieties, there are yet several more worthy of commendatory notice. Cellini I have observed closely under a variety of conditions, and in every instance found it of good fruitful habit, while the fruit are usually handsome and of good quality—another market variety, in fact. Lord Derby produces extra large irregularly formed fruit, which can be eaten or cooked any time from October to late in December. It forms a sturdy bush and compact standard, and with us has not failed to bear well in five successive seasons. Ecklinville is in season about the same time, and is of good free-bearing habit. Cordons of this variety at Sherborne Castle were last season wonderfully prolific. Hollandbury forms a good bush or standard; the fruit are large and very showy, and in season during November and sometimes to January. Our tree seldom fails to bear, but we never get heavy crops, and this was also my Essex experience. Mère de Méage does well in the western counties, being of good free-bearing habit either as a standard or dwarf tree, while the fruit are large, very highly coloured, and available during November and December. Mr. Williams of Canford Manor, Dorset, exhibited a fruit of this variety at the Bath Chrysanthemum and Fruit Show that weighed 20 ozs. Tom Putt ought to be taken in hand by the fruit-growers in other districts beside the West of England. It is common enough in Devonshire, and is always well shown at the Exeter exhibitions by both the trade and private growers. It appears to do well either as a standard or dwarf, usually bearing well, while the fruits are singularly handsome, and in season during November and sometimes well into December. It is a second-rate dessert variety, and cooks fairly well.

Tower of Glamis possesses a very robust constitution, but is a sure bearer. We have one very strong tree on dwarf stem, and wish we had more. Have also seen profitable standards of it. The fruits are large, bright yellow in colour, and excellent for cooking purposes during November, December, and sometimes to the end of January. This calls to remembrance that handsome variety Golden Noble, and which I should have been sorry to have omitted. I have seen profitable cordons, bushes, and standards of this variety, especially in the western counties. It is a great favorite with exhibitors, and well pleases the cooks from October to the end of December. Beauty of Kent all should cultivate. It forms a good free-bearing bush or standard, and I have seen well-fruited cordons of it. The fruits are large and handsome, and good alike for exhibition or cooking; in season during November, and frequently to the end of February. Lane's Prince Albert I have not had much experience with, but I have heard several speak most highly of it. Our chief authority, Dr. Hogg, in his "Fruit Manual," describes it as a very excellent culinary Apple from October to March, and further adds, "the tree is a marvellous bearer, and rarely fails to produce a crop." Warner's King is generally popular, and is found one of the best for the markets. It is a good sauce Apple, and as such is well known in the London markets. Our bush trees rarely fail to bear well, and it does equally well as a standard. The fruits are large and of good shape; in season with us from November to the middle of January, or they may be used direct from the tree.

Blenheim Orange or Pippin really merits a separate paragraph, so excellent is it in nearly every respect. In a young state it is a shy bearer, but well established orchard trees very frequently produce most valuable crops. The fruit are handsome in form and colouring, the very largest being invincible on the exhibition table, this being in the culinary classes, while well selected small or medium-sized examples are nearly as valuable in the classes for dessert varieties. None sells more readily in the markets at the present time. Season, November to the end of January, and occasionally later. Kentish Fillbasket is one of the surest croppers we have, the fruit being heavy and of attractive appearance, and a good cooker. In season during December and January. It forms very strong bush trees and good standards. Unless I am much mistaken this is known in some parts of Kent as the Pork Apple. Fearn's Pippin is one out of a dozen sorts extensively planted by a friend who grows solely for the London Eastend markets. He finds it a free-growing very fruitful variety, and sells for either dessert or culinary purposes any time during December and January. London or Five-crowned Pippin is one of my oldest acquaintances. We have a dwarf tree, and in Kent there used to be large profitable orchard trees of it. It can be classed as a culinary and dessert variety, and is good late in November and till March. Royal Somerset, as grown in this county and in the neighbourhood of Exeter, scarcely answers to Dr. Hogg's description. It is spoken highly of by those who have it, and I have seen several dishes of handsome conical-shaped fruit exhibited, and it is said to be a good keeper. Darnley's Seedling or Wellington is so well known and appreciated that I need say but little about it. Both dwarf and standard trees are very free bearing, and the fruit keep well into March. Alfriston is best grown as an orchard tree, and usually produces good crops of heavy good keeping fruit of excellent cooking quality. Bedfordshire Foundling is also a good orchard variety, the fruit being large and keeping well to the end of February, and sometimes later. Reinette de Canada as a bush tree is a failure here, but in Essex I had a strong old standard that did us good service. The fruits are large and heavy, keeping good to April, and on the whole it may be classed as a desirable orchard variety.

Winter Greening or French Crab I consider one of the best late sorts in cultivation. It does well either as a dwarf or standard, and is a sure bearer. The fruit are rather small, but keep well into the summer. Hanwell Souring with us is a light cropper, but the fruit are large and heavy, keeping to April. Dredge's Fame and Annie Elizabeth I have not grown, but at Sherborne Castle and elsewhere in the western counties both are highly spoken of. They are free-bearing medium-sized sorts, suitable for either culinary and dessert varieties, keeping well into spring. Hambledon Deux Ans I have seen bearing heavy crops in two different orchards, and it has the reputation of being a very profitable and good long-keeping sort. Norfolk Beefing does well hereabouts, especially as an orchard tree, cropping well and keeping well into June. Lemon Pippin is not so late-keeping as several of the preceding, ours being available up to March. It forms a good bush, is a sure cropper, and cooks splendidly.

Having dwelt at length upon the habits, merits, and the suitability of the various sorts for all purposes, a selection by me would be scarcely necessary.—W. IGGULDEN.

ANTHURIUM SCHERTZERIANUM.

ANYONE having seen a houseful of well-grown plants of *A. Schertzerianum*, during their season of flowering, with their bright and showy scarlet spathes standing out boldly in contrast with their dark green foliage, must have admired them. It is one of those plants we cannot afford to be without, as the lasting properties of its spathes are such as to make it invaluable as a show or decorative plant for at least four months of the year. Those who remember the first plants of this Aroid sent out from the nurseries can see the marked difference both in size of spathe and foliage, being both broader and longer. During the past few years many forms have been obtained by hybridising, some of which are beautiful, yet the scarlet-spated type still holds its own, and will continue to do so. The plants are not difficult to grow, but will show themselves to best advantage where their requirements are understood, and will amply repay any extra attention that may be bestowed on them. Many of the small-spated varieties seen in private establishments are worthless compared with the finer varieties, and the former might in many instances produce larger spathes and foliage by a little more liberal treatment. I have grown a large number of plants for years, and have never failed in having a fine show during summer.

The best material in which to grow them is good sound fibry peat and sphagnum, rough charcoal, with a good sprinkling of dried cow dung, and a dash of sharp sand to keep the compost open. This must be of such a nature as to keep sweet for at least twelve months. The plants soon lose their vigour if the material becomes at all "pasty" and retains moisture to an excessive degree. I prefer potting in August or the beginning of September, when most of the spathes are dying. Some of the plants require the whole of the potting material renewed. The plant is very accommodating in this respect, and always grateful for having its roots well washed and every particle of old soil taken from it. Of course this must be done with care, so as to break as few roots as possible. Clean pots half filled with crocks, a little of the rougher material placed on them, the plant is then placed a few inches lower in the pots than before, so as to encourage the emission of roots from the stems, and also to prevent it having a drawn appearance. The compost must be worked carefully amongst the roots, and made moderately firm. When finished the plant will be slightly above the rim of the pot, and the whole surface may be covered with green moss, such as is found growing under trees or on ledges of rock. It is surprising how soon the moss will be filled with roots, they seem to have a great liking for it, and it also stands the application of liquid manure better than sphagnum, always looks neat and green. A good watering so as to moisten the whole, after potting, is all that is needed for a few days. Some of the plants will be found such a mass of good and healthy roots that it would be impossible to take any of the old soil from them without doing more harm than good; these are simply shifted into larger pots, allowing them to be a few inches lower, and opening out the tufts or stems as much as possible by placing the rougher material between them to give more room and encourage other stems growing from them. It will also give the foliage more room and the plants a larger appearance. They are great lovers of water, and in fact should never be allowed to become dry at any time. The surface moss may be kept moist by syringing even during winter, when less water is required. During spring and summer they delight in a moist atmosphere, and syringing twice a day with tepid water will prove beneficial and keep the foliage clean. When in full growth they need watering liberally; if the pots are well drained, and the compost such as to allow the water to pass quickly through, there need be no fear of the result. They are not too fastidious as to the food they receive in a liquid form, but that made from cowdung is preferable to any other, and may be given continually in a weak state rather than stronger doses at greater intervals. Soft water may be given occasionally with good results.

The insects troublesome to this plant are not numerous. Green fly is the greatest pest, and is found at times in abundance on the under side of the young foliage, where, if allowed to establish itself, will soon suck the juices from the tender leaf and cripple its growth. To have the foliage clean, well grown, and healthy lends a great charm to the spathe by contrast, so that the fly should be disposed of by an occasional smoking, or the foliage carefully sponged so as not to tear or break the young leaf. Sometimes scale appears on the older leaves; this may easily be removed by the sponge, as the older foliage is strong and leathery. Woodlice should have no quarters amongst the plants, as they destroy the growing points of the roots.

The stock of plants is easily increased by division of the growing tufts at potting time, and if possessed of a good variety it is well to keep up the stock by division. Seeds saved from the best varieties—which appears on the spadix in the form of green dots, and in the course of twelve months assume an orange-scarlet colour—will germinate quickly if sown in a light compost and plunged in bottom heat. When pricked off they must be carefully watered, as they soon damp off at this stage. It is always interesting to watch the progress of seedlings, and it often repays any additional care by giving improved varieties. Some of the seedlings are sure to be worth keeping, having some good quality of spathe or foliage. The broader and longer the leaves the greater the probability of a spathe in proportion, but some of the narrow-leaved varieties are remarkable for the length of the spathe, and these form a pleasing contrast and variety.

The night temperature during winter need not be higher than 55° to 60°, but no hard-and-fast line should be drawn, the temperature should be regulated by the state of the atmosphere outside. During spring and summer they enjoy a high moist atmosphere, 65° to 70° at night, with a rise of 10° by day, and abundance of fresh air. A slight shade during the hottest part of the day will preserve the spathes longer, and prevent the tender foliage being scorched. If the above hints are put in practice they will give good results, and are not written for the benefit of the experienced, but simply for those who are making a start.—T. C. A.

PRUNING AND CLEANING GOOSEBERRY AND CURRANT BUSHES.

In many places this operation is deferred till spring, with a view to thereby secure better crops of fruit by cutting out all the shoots from which the birds had removed most of the buds during the three previous months, and retaining only those which are well furnished with buds. This, where no means are employed to prevent the depredations of the feathered tribe during the winter months, is a very good reason for not pruning the bushes before spring. But I maintain that gardeners, and farmers too, should not willingly leave work for doing in spring that could be as well done in one of the three preceding months. Hence it is that I recommend Gooseberry and Currant trees being pruned as soon after they have shed their leaves as may be convenient, the earlier the better, because then the manuring and forking of the same into the plots and borders occupied can be proceeded with, and the walks, if necessary, re-gravelled and rolled.

In pruning Gooseberries simply thin the shoots out of the individual bushes, retaining a sufficient number of the best placed shoots of the current year's growth to form a handsome bush, cutting the side shoots back to within a bud or two of their bases; and the tops of the shoots left to bear fruit where likely to be borne to the ground by the weight of the latter should be shortened back a little, as also should any unnecessarily long shoots be shortened back so as to give symmetry to the trees. The centre should be kept pretty well open, and all cross shoots removed, so that when the trees are in fruit shoots furnished their entire length with large fruit may hang one above another all round, thus leaving the centre of each bush open so that the fruit can be gathered with comfort—that is, without the hand being sacrificed in the process. Thus treated larger fruit and more of it is obtained than would be secured from bushes spurred in like Currant trees to within a bud or two of its base.

Black Currants must have the shoots thinned out in the same way as recommended for Gooseberries, but the Red and White varieties should, as already indicated, be spurred into the old wood, except, of course, young trees which should have sufficient young wood left to form a fairly good sized tree within three or four years from the time of pruning. After the trees are pruned dust them with lime while the branches are quite damp, so that it may stick to them. This will not only destroy any lichen, moss, or insects that may be on the trees, but it will prevent the birds from interfering with the buds.—H. W. W.

THE VICTORIA REGIA AT CHATSWORTH.

THE accompanying photograph of the Victoria regia house was taken in the month of August last at the time the plant had eleven leaves, the largest measuring 7½ feet in diameter, including the turned up edges, which were 6 inches deep. I had the curiosity to find out what weight

this leaf would carry, and a thin board was made the size of the leaf and weights placed on, with the result that it carried the almost incredible weight of 14½ stones (203 lbs.), including the weight of the board. Mr. Latham of the Botanical Gardens, Birmingham, calling here about that time, stepped on to the leaf, which carried him safely.

The marvellous part belonging to this wonderful plant is the rapidity of its growth, especially when considered in connection with its great strength and weight, the leaf in question only having taken from ten to twelve days to reach the dimensions above given from the appearance of the bud above water.

The plant produced during the summer fifty-two blooms, the largest measuring 18 inches across. It is impossible to describe the marvellous beauty of this peerless flower from its first appearance above water to its decay (which only takes about forty-eight hours). The conditions and essentials necessary to its successful cultivation are—a tank large enough (ours is 36 feet in diameter), with a well in the middle capable of holding five or six cartloads of rich soil for planting in, a sufficient quantity of hot-water pipes to maintain the water at from 75° to 80°, and all the light it is possible to give it. I have heard of its being grown in a heated tank out of doors, and my experience with the plant last summer leads me to think that in the south of England and in some of the warm coast places it would be quite possible to grow it successfully in this way, provided the situation is a sheltered one. I shall have pleasure in supplying anyone with seeds who may feel disposed to try to grow it in this way.—O. THOMAS, Chatsworth Gardens, Chesterfield.

THE FERTILISING AND STONING OF GRAPES.

THESE two matters have engaged my attention for some time, more especially during the last two years, and I would like to put my ideas and practice on paper. Fertilising or setting is a somewhat vexed question. Some growers do not believe in artificial fertilisation, and grow a crop of Grapes all right under natural conditions. Again, some believe it is necessary, but for press of work this is left pretty much to itself, possibly a gentle tap now and again in passing round being all that is done. As you will see by the samples sent, it must be very plain that Grapes, unless well and thoroughly attended to at the right time, would be sadly wanting here. No doubt fertilising to most would mean stoning, but this is not necessarily so, as I shall prove.

Speaking generally, I think much better results are obtained by making sure that every bunch is dusted with pollen with the aid of a feather brush, and not once, but daily, while there are any signs of pollen. Bright days are decidedly the best for the operation, but to omit this for want of sun is a mistake. The safe course is to use more fire on sunless days, ventilating also at the top so as to have the pollen fairly dry. Without doubt any bunch is better for being brushed even with its own pollen, but in many cases the pollen from another variety is a great improvement. On sunny days with care increased front ventilation is very beneficial, but very great care is needed in this on account of the tender foliage. Bees and flies are of great use as fertilising agents, but unfortunately they cannot be depended on, and especially in the early houses. I am an advocate of dry pollen, having tried the syringing method to no good purpose. See Alnwick Seedling bunch which I send.

That fertilising is an aid to stoning I willingly admit, but to say it will produce stones I deny. Stoning I have found must be assisted through the roots. In support of this I call your attention to the shoulder piece of Alnwick Seedling with large berries, but very few of these have more than one or two stones. I will now refer to a few special cases bearing on my twin subject. Lady Downe's Seedling, I take it, is known as a bad setter. Fertilising alone never did what I wanted. Certainly it did produce well-set bunches, but many of the berries were small and stoneless. Let me call your special attention to the piece of Lady Downe's, the lower half of the bunch being furnished with a cluster of berries (I never thinned these), half of them being large, the others stoneless; but those on the top half of the bunch are not much larger than they were when in flower. They never swelled, and were green when the larger berries were ripe. When I say fertilising is necessary I repeat this is not all that is required to produce stones. This Grape succeeds better with pollen of any variety than its own, the Black Hamburgh probably being the best. I send you small piece of perfect Lady Downe's out of the same house, so that you may note the extreme difference. A bunch of Alnwick Seedling was syringed to set it, and you see the result. Compare the two examples. Unfortunately this Grape is wanting in the normal number of stones, so is not the best for keeping. Stoneless berries

of Muscats are the first to shrivel. No Grape will repay for good attention more than this. A higher temperature at flowering time is of great assistance in setting. Gros Colman Vines grafted on Muscat require strict attention, or they will not stone nor attain the best size. This Grape on its own roots is the only variety that fertilises itself, yet even here I shall try artificial impregnation another year. Madresfield Court is always better for the brush. One or two bunches not so set were small, but the berries were black. A rather strange freak took place here with the Black Hamburgh. One young rod was left without attempting to dust it, and this rod all through was noticeable for its small berries, yet on the same Hamburgh roots a rod of Gros Maroc set itself, swelling very fine fruit and of a beautiful colour. Gros Maroc here has never required fertilising. Alicante on Black Hamburgh is, I think,

Madresfield Court here in a natural state it is very faulty at stoning. Now by repeated supplies of lime I have had berries with not only the normal number of stones, but have in some berries this year six stones. Could I work all so I should be glad, but in some cases I have used double the quantity of lime with less effect. To me it appears that different localities and varieties require special treatment. A light or sandy soil, if well looked after, I should consider much better for Vines as far as setting and stoning are concerned. In endeavouring to state my views on this subject I have only recorded the practice put in operation here. Without doubt I shall make a special point not only to increase fertility but also stoning. I know it can be done, the simpleness of the work being, no doubt, to some, the reason why it is not done. I have no hesitation in stating that, without any exceptions, artificial aid at flowering time



Fig. 2.—VICTORIA REGIA AT CHATSWORTH.

better for brushing; yet even with this I am not satisfied the stock is right, the berries are not large enough for me. Buckland Sweet-water came into flower at a very sunless time, so I used the brush: with Black Hamburgh pollen I succeeded in getting a heavy crop of fine fruit.

Lime, gypsum, or ground coprolites play a very important part in stoning my Grapes. I have a very heavy marshland soil to deal with, naturally containing no lime, and I am now compelled to believe that the mortar or lime rubbish I used in making the borders was only good mechanically. As a lime fertiliser, one load of slacked new lime I think preferable to double or treble the quantity of old lime rubbish. In all new borders I would mix new lime with the compost, so that the soil should be thoroughly impregnated.

It is surprising with a little practice in brushing the flowers how few can be touched, in fact a skilful hand can and will just set the outside blooms only. In the case of the Alicante, for instance, were all the berries to be set it would entail a much extra thinning. No fixed rule can be laid down for root treatment with a view to insuring good stoning, as varieties differ so much. In the case of

is of very great importance in any case, especially where Grapes have to be kept till April or May.—STEPHEN CASTLE, *West Lynn*.

[The specimens received showed conclusively the great value of artificial fertilisation at West Lynn, and the failure of the attempts at setting the berries with the aid of the syringe. The good samples before us are very good indeed, and we trust our correspondent will continue his experiments in Grape culture for the benefit of himself and other cultivators.]

LEEDS PROFESSIONAL GARDENERS' FRIENDLY BENEFIT SOCIETY.

THE twentieth anniversary dinner of this flourishing and very useful Society was held on Tuesday evening, the 28th ult., at the Green Dragon Hotel, Guildford Street, Leeds. About sixty-five gentlemen sat down to dinner, and included, in addition to members of the Society, representatives from the Sheffield Floral and Horticultural Society, the Sheffield and Hallamshire Gardeners' Mutual Improvement Society, the Wakefield Paxton Society, the Barnsley Paxton Society, the Bradford Paxton

Society, and the Leeds Paxton Society. Mr. Jos. Smith (President) occupied the chair.

After the usual loyal toasts the Secretary, Mr. Wm. Sunley, read the annual report, which showed that the income of the Society for the past year had been £110, the expenditure £49, leaving a saving on the year's working of £61, which sum, added to £766, the savings of the past nineteen years, makes a total to the credit of the Society of £827, or £7 7s. 9d. per member. The honorary members number nineteen and the financial members 112. The average age of the members is about forty-five years.

The toast of the evening, "Success and Prosperity to the Professional Gardeners' Friendly Benefit Society," was proposed by Mr. W. K. Woodcock, of the Sheffield Floral and Horticultural Society, who took occasion to congratulate the officers and members of the Society upon the successful year they had just completed, and spoke of the extreme value such a Society is to young gardeners becoming members, and the exceptional advantages it has to offer over and above those offered by the large affiliated societies, such as the Foresters and Odd Fellows, for whilst the monthly contributions paid into this Society are only half the amount required by those Societies, the sick and funeral benefits to be derived are about the same in each case, and yet withal this extremely low rate of contributions in proportion to benefits, the Gardeners' Society was able to keep on saving money at a very satisfactory rate. He was of opinion there were several reasons to account for this. Firstly, gardeners are as a rule a healthy body of men, not so liable to accidents as those engaged in mechanical pursuits, and the death rate amongst gardeners is low. Secondly, the responsibilities attached to a head gardener's position precludes the possibility of his laying aside his work to fall upon the Society's funds for anything short of a serious and protracted illness, and also that employers of such gardeners do not generally stop payment of wages during a short illness; and thirdly, that gardeners as a class are a respectable body of men with independent feelings, who will not allow themselves to become a burden upon the funds of a Society without the most absolute necessity. He believed there was no better Society a young gardener could join, and he would be pleased to recommend any such he was acquainted with to become members. He thought it would be wise on the part of the officers and committee to endeavour to make their Society more widely known, and so obtain members from other large centres of gardening.

Mr. Twigg (Wakefield Paxton Society) supported the proposition, and endorsed the opinions expressed by Mr. Woodcock, that it was much more advantageous to a young gardener to join this Society than one of the affiliated Societies in which men of all trades were admitted as members.

The Secretary (Mr. Sunley) in replying, stated that their Society was in no way limited to Leeds and district, but had already enrolled members resident in various other districts. He also stated that two years since a notice of their Society, together with extracts from the rules, appeared in the *Journal of Horticulture*, which caused them to receive numerous letters applying for copies of the rules from various parts of the country, and caused them to enrol a number of new members, some of whom they had as yet not seen. The Chairman also spoke in reply, and stated that their Society was open to receive members from all parts of the country, provided they were professional gardeners and were able to conform to the regulations required, one of the principal of which is embodied in Rule 26, and which states, "That any candidate for admission into this Society be required to sign the following declaration:—I, A. B., do hereby declare that I have worked as a gardener seven years successively (five years for members up to twenty-one, three years up to eighteen years of age), and should this ever be detected to be a false statement then all claims I may have insured for in this Society shall be null and void.—Signed, A. B." He also said that these qualifications were rigidly enforced, and this fact had caused the necessity of refusing very many who had made applications to become members. The Committee endeavoured in every way to work for the good of the members who were employed as bona fide gardeners.

Mr. R. Featherstone made an able and effective speech in proposing "The town and Trade of Leeds," and remarked that he believed the town had not suffered from depression of trade so badly as had some other towns, owing principally to the great diversity of trades carried on in the town. The work of the gardener, he considered, was bound up with other trades, and although the wages of gardeners were not so high as in some other trades, and speaking from his own experience as a trade grower, fortunes could not be realised in the business with such rapidity as in those other occupations, yet they as gardeners would all join with him in wishing prosperity to every trade in the town.

Mr. G. Hemming, in a humorous speech, proposed "the Officers of the Society," and remarked that, although the Treasurer and Secretary had each held their present office since the formation of the Society, a period of twenty years, they were not yet willing to part with them, feeling assured they would never meet with men who had more fully the Society's best interests at heart.

The Secretary, in replying, stated that had he accepted all applications for membership from the formation of the Society they might by now have numbered 5000 members. They, however, could admit none who were not, strictly speaking, professional gardeners. Not more than thirty-five of their members were residents of Leeds or district.

Our reporter concludes his notice of "the most successful and thoroughly enjoyable anniversary meeting ever spent by the Society" by commending this Society to gardeners throughout England, and assuring them that all applications they may choose to make for rules or further

information will be cheerfully responded to by the courteous Secretary Mr. William Sunley, Bacchus Hill, Moortown, Leeds.

THE PLEASURES OF A GARDEN.

THE pleasures of a garden! Where there is so much to be enjoyed how shall we attempt to define? If there is such pleasure in charm of diversity in the actual fact, how can I attempt to enter upon a description, written out in carefully definite order like the heads of a sermon or a lesson in logic? In such an attempt I should deprive my paper of that feature of naturalness which I only wish I could secure, and which it must, in some measure at least, possess, if it is to impart even a suggested sense of garden pleasures. It will be clear that I have not just now in my mind anything approaching the stiff artificialism of closely trimmed rows of sombre heavy Yews, cut into severely straight lines, relieved (shall we say?) by here and there a permitted growth into something bearing crude resemblance to bird or beast, but which is not at all in keeping with the statelier sweep of Nature, who draws her lines with freer hand and balances new groups with more graceful effectiveness.

But where am I to begin? What may be put amongst the first of garden pleasures? The provision of an occupation which shall take you into the open air. This is a pleasure you can scarcely over-estimate. Only those who know something of mornings in a garden can appreciate it. The sunshine comes with his bright warm presence to speak his cheery "Good morning" to Columbine and Sweet William, to Crown Imperial and Ragged Robin. He lifts the dainty beaded coverlet which Nature with profusion of sparkling jewels had thrown in the night over everything she could cover, whilst the world slept.

There is something in the balmy freshness of a beautiful morning which cannot be described. Dear old Mother Earth seems to have put upon her brown hands, just to receive the earlier visitors, her brightest gems, and they flash and sparkle in the sun, topaz, jasper, emerald, diamond, in bewildering brilliancy. She is beautiful always, whether she dresses herself in the sober tones of greys and greens when the dark days come, or when she puts on her summer finery and smiles upon all who look upon her, looking as young and fresh as ever she was. But in the early morning she has a charm which must wear duller as the day draws on; besides which, there is the chatter of the birds which cannot sing, and the full-throated melody of those which can, and this is a very special feature of the part of the day which modern civilisation for the most part seems vaguely to believe has actual existence, and which is referred to as "the time before breakfast."

Let me have a line and spade and seed bags, then. It is too soon for the world to be curious. Everything astir seems to be of a confiding disposition. You leave your spade sticking up in the patch you have just turned up to the sun, and when you look round again you find a robin is perched perkily on the handle. He bobs and bows and chirrups cheerfully, as much as to say, "Oh, yes, I see you've been at it." Then he avails himself of his vocal rattle between times in his own peculiar way, "Well I'm sure now, this is an unexpected pleasure. I did not expect to see you so early." And then an acquaintance comes chirruping along, and away they go merrily, and next appear perhaps on the Briar bush close by you as you venture to straighten your back again to have a peep at the top branch of the Pear tree, where the thrush—*our* thrush—sits, and he is gurgling and trilling the sweetest dreamiest music in regular alternation with another thrush occupying a branch of the Walnut tree at the bottom of the next orchard.

Then there is the pleasure of actually growing the fruits and vegetables for one's own table. Reader, if you have never entered into these subtle delights by actual experience you can never fully realise the joys I would describe. Have you ever had a call some morning at the office—presumably you are a townsman—when some friend with evident and ill-concealed nervous excitement is carefully untying a diminutive box of which he has taken the greatest possible care? He has unfolded from the layers of cotton wool three fruits of a red Plum, rusty a bit, perhaps, and smallish, but Plums! Red Plums! "Yes," he explains, as his face lights up, "these are grown on the wall in my garden hardly out of the High Street. We've gathered sixteen—no; one was got for George. Yes, seventeen we have gathered, and there are twenty-two more yet—thirty-nine Plums on quite a little tree—and such delicious fruit! I wish I could leave you one, but I have promised to take them to the office. Harriet says she hasn't tasted Plums like these before."

How feeble and prosaic it all sounds as I write it in the remembrance of the facts as they stand before my memory. Do

you think all the wealth of Covent Garden could equal the joy of bringing on to the breakfast table some morning as a surprise for Harriet a plate of those Plums? If you have never picked such you cannot judge. There are no Strawberries like our Strawberries. With what pride the good wife hides the keys of the garden and assumes them temporarily lost just as the first berries ripen. This is a garden secret, and I am supposed not to know. The children—bless them—Strawberry pickers every one of them—are of course taken into mother's confidence. [N.B. *en passant*. If you ever want to make an innocent plot "go" successfully, make the children interested parties.] At the week end of course the keys are found—and the Strawberries. A plate brim full of luscious melting fruit is handed in with that triumphal air of success and delight which marks a due sense of consciousness of the importance of the event, and seems to suggest quite plainly—"Ah, you didn't know this, you can't buy Strawberries like these." Then the children laugh and compliment each other upon the success of the scheme, and tell of the hairbreadth escapes during the period of suspense and silence; how Rose very nearly said this, and Lily (we have flower names for the children, you know) nearly said "Strawberries right out one night; don't you remember?" All this must appear trivial and foreign perhaps to some of you, but it is a very real experience nevertheless, and one which stands out very distinctly as a real garden pleasure.

But the Peas, and the Potatoes, and the Cauliflowers. Vegetables never did attain such perfection as in this patch, wherever it is, if it is "our garden." The Apples are the juiciest, the Pears the sweetest, the Plums the prettiest, and the Cherries the plumpest. The Lettuces are crisp and solid, the Celery trench is a marvel of excavation and earthwork, a centre of activity and anxiety for ever so long; and the herb garden is filled with just such things as give aroma and flavour in all the subtle essences which are locked up in the Basil, Tarragon, and Thyme.

But paterfamilias wants something more tangible than sentiment and surprises. Yes, we understand. I can promise him profit with his pleasure. In Goldsmith's charming masterpiece, "The Vicar of Wakefield," you remember how he describes the modest mansion of the village pastor, who was "passing rich on forty pounds a year." I have always firmly believed that the worthy man could not have laid full claim to the possession of such easy affluence on such a slender stipend, unless he had been blessed with the treasure of a good garden in addition to his modest mansion. It is really surprising what an almost inexhaustible store may be found in a well kept, well managed garden. If health and happiness are to be found lurking under the clouds and beneath the leaves concealed everywhere, and only manifesting themselves as you hunt for them, Thrift might not inappropriately be written over the gate.

It has been said by someone, who was doubtless a philosopher, that if a man goes into his garden to seek cobwebs or insects, grubs and creeping things, scavengers, and devourers, if he looks for decay, destruction, and death, he may find them, but if he goes to admire his flowers, he will probably return with one in his buttonhole. That is only another way of saying you may find very much in the garden what you go to seek. The pessimist may have his lines of gaslime and his tracks of paraffin, and curiously wrought designs in salt and soot, but the caterpillar nevertheless is fat and flourishing, and the cankerworm is busy and big. The optimist—and nearly every gardener is an optimist, or ought to be—cannot see blight for blossom. He loves his plants more than he hates his enemies, and works "for love," as the children say when they do not play for gains.

I had a great deal to say upon many other questions, but a Christmas number is like a Christmas pudding. It would not do to be entirely composed of currants and peel. The cook could scarcely tell you how many things have been put into it, but it somehow seems to be an opportunity for popping in all kinds of unexpected sweetmeats and good things, and when they are served together you only catch the flavour of the whole—that is, the memory of the Christmas pudding.

Some other time I must tell you of the pleasures to be derived from observation, and noting your observations, keeping them in a book of records to be read at odd times and consulted upon points which perplexed you or pleased you at the time. Art in the garden, science in the garden, and ever so much more. This must come again; but just one maxim before we part for the present. If you cannot remember anything else I have said, remember this, "Get into the habit of dropping the cares of the outer world as you put finger on the latch of the garden gate." Someone hasn't remembered his bill (receivable in your bill book); someone *has* remembered his (payable this so far as it affects yourself); and the two facts rub together uncomfortably

and cause friction. You walk on meditatively and do not to-day see the children who are standing at the entry ends or lane corners for a word in passing just as they did yesterday. You walk on. Click goes the latch of the garden gate as you lay your finger upon it half unconsciously—click. Drop your burden. Leave it outside. There is a sparrow chirruping upon the roof with all the family cares at this moment inconveniently placed in the gutter. They do not bother about vague possibilities. I should think not. They do not reap and gather into barns, and yet—Yes, leave your cares outside the garden gate.

One more remark and I have done. Let your love of the garden tend to induce that love of simplicity of life, which, after all, is the charm of life. Nothing can give a nation peace, prosperity, and contentment if her people have lost love of simplicity.

Her sons must be employed in the field and the garden. Her children must be fed largely, I would say mainly, with the fruits of the earth.

"When spades grow bright, and idle swords grow dull,
Then jails are empty and our barns are full."

What a happy land is that where its people are filled with the spirit which finds pleasure in the garden.—JOHN EDMUNDS.

MUSCAT GRAPES SHRIVELLING.

As this is a most important subject I shall offer no apologies for my rather late interposition in the discussion so well initiated on page 379 by "Experientia docet." Our late Muscats commenced shrivelling much as described by that writer, and for a time I was very vexed about it, especially seeing that there was then no apparent reason for such an unfortunate result. Having a fairly wide circle of friends and a good scope for observation, I soon discovered that the complaint was very general, and a round later on among the Chrysanthemum and fruit shows afforded proof that we in the West of England have, after all, something to learn. Luckily the mystery is elucidated.

I have not the slightest doubt that the cause of so many Grapes shrivelling prematurely was, as our friend points out, a much too dry atmosphere during September and the first week in October, and for the future this unforeseen contingency will, or ought to be, guarded against by all who wish to keep their Grapes plump. This shrivelling, although quite distinct from shanking, not only disfigures the bunches either for table or exhibition, but seriously lowers their market value, as plenty of growers have found out recently. At the present time there is a good demand for Muscat and other Grapes hereabouts, Bristol, and I may say the West of England generally, this proving that many have either sold out soon after shrivelling commenced, or else that Grapes are keeping badly. The long spell of wet and dull weather has not much affected the shrivelled Muscats. They keep because they are more nearly approaching the raisin state, whereas the more watery and plump Alicantes, Lady Downe's and Gros Colman, are, unless very freely thinned at the outset, keeping very badly indeed. Personally I have not much to complain of as regards the keeping qualities of the above-named black Grapes, as well as Gros Guillaume and Mrs. Pince, only the most solid bunches being any trouble to us, and from this it would appear that what suits them is not altogether beneficial to the white Muscats. I believe in plenty of fire heat and a good circulation of air during the time late black Grapes are ripening, this conducing to the formation of the saccharine matter, without which Grapes are neither of good quality nor good keepers.

In addition to the sorts above named, we have also Madresfield Court in the middle row of supernumerary Vines, and this happened to be at the end where the Muscats, Mrs. Pearson, and Golden Queen are located. In order to prevent the former from cracking we admitted front air freely, too freely as it turned out, nor did we damp down so frequently as we might have done had Madresfield Court, with its handsome bunches, been out of the way. Some seasons less harm would have been done, but this time we injured both the Muscats and Golden Queen, both shrivelling somewhat, whereas the more watery Mrs. Pearson did not shrivel, but shanked instead. The most shrivelled berries were towards the end of the Vines, those at the front or the lowest bunches being the least affected, this also tending to prove that heat and dryness of atmosphere were principally responsible for the mishap.

I have said that shrivelling was very general, but, as usual, there are noteworthy exceptions to the rule. The finest lot of Muscats I have ever seen were perfected at Longleat this season, and I believe I may safely assert the equal of this grand house of Grapes could not be found anywhere. In spite of the heavy crop of large bunches, no fault could be found with them, but all were well set, the berries were extra large, and coloured beautifully. No sign of shrivelling to be seen, and those who know some of my weaknesses will readily imagine that I soon began to make inquiries as to the why and wherefore. All the while the dry weather lasted the vineries were damped down freely twice a day, and only in dull weather was this discontinued. This, coupled with good attention at the roots and judicious ventilation, prevented shrivelling and assisted the Vines in the work of finishing the crop. Mr. Pratt is to be congratulated upon the results of this successful treatment of the grand Vines under his charge. Mr. J. Gibson, another friend of mine, well known in the neighbourhood of Bristol as a good Grape-grower, and now in charge of the gardens at Draycot House, near Chippenham, Wilts, has

been equally successful in preserving the plumpness of his Muscat berries. The Vines in this case have been wonderfully improved since he has taken them in hand, the crop, however being more remarkable for the even useful size of bunches, and the plumpness and good colour of the berries. From "information received," it appears Mr. Gibson "watered and damped down the same in September as heretofore." He does not believe in any cut and dried rules for watering and damping down, but waters the borders, all inside, when approaching dryness, and damps down whenever the atmosphere of the house feels at all dry. His are not mere sprinklings, but the water is dipped with a bucket always kept conveniently near an open soft water tank, and thrown all over the border. It should be added that the border is well covered with stable litter, this admitting of the just described expeditious method of damping down, and also I should imagine checking injurious evaporation from a damp border.

Mr. Gibson also points out that the Vines that are in the best state at the roots are the first to ripen the wood and cast off the foliage, and are the least liable to have shrivelled berries. Overcropped or badly rooted Vines will frequently disappoint in the matter of shrivelling or imperfectly maturing the crops, this happening during any season, but when Vines in the best of health and well attended to in every way act somewhat similarly, the cause must be more or less abnormal. The profession of gardening presents many difficulties, and is never thoroughly mastered, nearly every season disclosing some new enigma.—W. IGGULDEN.

ROSES THE BRIDE AND GRAND MOGUL.

AS the exhibitors of these two Roses at the Royal Horticultural Society's Gardens on July 6th last, alluded to by your correspondent, Mr. T. W. Girdlestone, at page 562, last vol., we feel compelled to protest against his treatment of them. So far from the blooms in question being discreditable to the varieties, we have ample evidence that by the more discriminating section of the Rose-growing public there present their merits were fully recognised.

We also beg to deny Mr. Girdlestone's assertion that Grand Mogul is a sport from A. K. Williams, which if believed is calculated to damage the sale of the Rose, because many people who would buy a seedling would not buy a sport, as the latter often reverts to the type, which the former never does. As Mr. Girdlestone in the same column tells your readers that "these Rose sports are generally inferior to their parent in some respect or other," he should hardly have branded this grand novelty as a sport when we had long previously exhibited it and announced it in our catalogue as a seedling.

By thus endeavouring to "damn" these two Roses "with faint praise," Mr. Girdlestone may think to do Rose-growers a service, but we are of opinion that they have already won for themselves too secure a place in the estimation of competent judges to be thus ousted from it.

We hope Mr. Girdlestone will not expect that we shall be deterred by fear of his displeasure from exhibiting any new Rose that comes into our hands at as early a date as we possibly can, since we believe it to be the true interest of Rose-growers and Rose-growing that we should do so.—WM. PAUL & SON, *Waltham Cross*.

ALDENHAM PARK.

THIS, the pleasantly situated residence of H. H. Gibbs, Esq., is easily reached by train from St. Pancras, on the Midland line, being $2\frac{1}{2}$ miles from Elstree Station. The mansion is backed up by some fine specimen Elm trees, and has a most pleasant outlook. The gardens have undergone many improvements during the last two years. Trees and Conifers have been transplanted from one place to another, and from their luxuriant appearance they seem to have had the right treatment. Notwithstanding the fact that the soil is clayey and wet during the winter, the gardens entirely are particularly well managed, the kitchen garden crops being excellent, and, what is of great importance in all gardens, everything is very neat and clean, reflecting great credit on the gardener, Mr. E. Beckett, who, though young in years, is old in experience. A few notes, hurriedly taken during a short visit some months back, may not be out of place, and might perhaps be suggestive to others. One of the most effective sub-tropical arrangements which I have yet seen was there displayed, a border 12 feet wide and 50 feet long, backed up with dark evergreens, such as Yews, *Thuopsis borealis*, &c. The tallest plants were gigantic specimens of Hemp (*Cannabis gigantea*), green Oastor Oils, and tall Sunflowers, mingled thinly. The middle and front was filled with *Ricinus Gibsoni*, *Wigandia caracasana*, *Solanum robustum*, *Acacia lophantha*, Red Mountain Spinach, Sutton's Miniature Sunflower, Variegated Maize. The whole was remarkable for the wonderful luxuriance of the foliage; without being in any way crowded, each plant seeming to fill its allotted space and no more, while the colours harmonised well; the whole formed a grand combination of sub-tropical plants. Particularly effective was an oblong bed filled with *Lobelia fulgens*, and edged with *Chamaepeuce Casabonæ*. Several beds on the terrace were planted chiefly with carpet plants relieved with a tall plant or two of *Dracena australis*, the arrangement of the various plants being quite in the best style. Particularly bright was *Alternanthera amœna*. *Lilium auratum* was freely planted among the Rhododendrons, and very well it looked when in bloom; large spikes of richly coloured flowers towering above the green foliage of the plants underneath looked quite imposing. The herbaceous borders, which are extensive, were occupied with many choice plants suitable for the purpose. Amongst them were some choice

Scabious, Zinnias, and at the back were varieties of Pompon Dahlias, which served to lighten the garden considerably.

The houses were characterised by the same good quality and cleanliness. There is a small choice collection of Orchids in excellent condition, the fronts of the stages being neatly margined with *Isoplepis gracilis*, which gave a finish to the stages, a good batch of healthy-growing plants of *Eucharis amazonica*, which Mr. Beckett informed me was at one time nearly killed with disease. A very fine collection of Chrysanthemums, of which Mr. Beckett was a noted grower when in the neighbourhood of Kingston-on-Thames, gave promise of abundance of fine blossoms. Bananas, Pines, Grapes, Peaches, not forgetting a very fine tree of the Brown Turkey Fig, were all in excellent order. About 1200 Strawberries in pots looked capital.—E. M.

GOMPHIA DECORA.

SMALL plants in pots of *Gomphia decora* are useful for late autumn and winter flowering in stoves or warm conservatories, but they are seldom seen employed in this way. Mr. B. S. Williams, Upper Holloway, had



Fig. 2.—*Gomphia decora*.

some attractive little specimens in one of the stoves at his nursery a few weeks back, and the bright yellow flowers had a very cheerful effect amongst the foliage plants that usually predominate in such structures. It is easily grown, but is seen to better advantage in a small state, say in 48-size pots, than when of larger size, and to maintain a stock of suitable plants a few cuttings might be struck occasionally. Light turfy loam with a little peat or, preferably, good leaf soil, will form a compost adapted to the requirements of the plant. Some attention will be needed to keep the plants clear of insects, mealy bug and scale being the chief enemies, but these can be readily destroyed.

INDIAN EXPERIENCES.

(Continued from page 589, last vol.)

THE first work appointed me by Mr. Bassano was forming a large nursery of seedlings, and building a house for myself on the highest point on the property. The first operation was one easy enough of ac-

complishment to me had I been let alone, but my superior would not unfrequently upset my work and arrangements by giving me to understand that he would have none of my "new jims" introduced on any plantation under his charge, ordering the overseers and coolies in my presence to undo the work I had completed, &c. I worked on patiently, however, as much after my own fashion as possible, and had the satisfaction of rearing a nursery of young Coffee plants containing some 200,000, which I planted out successfully in the open about twelve months later. The Coffee seed is sown without the inner skin or "parchment" being removed thickly in beds, very lightly covered by fine mould, on the top of which a thick coating of leaves is placed. The beds are kept in a uniform moist state until the seeds begin to germinate, which happens usually about six weeks after sowing. When the seedlings are large enough to handle they are pricked out into other prepared beds about 3 or 4 inches apart each way, kept constantly watered and shaded in hot weather until they are fit to be planted out, which is generally about fifteen or eighteen months after sowing of the seed. I need hardly say that success in the formation of a Coffee plantation depends greatly on the stamp of seedling available for planting out, so that the greater the care bestowed on the nursery the better will be the future permanent prospects of a plantation. At the time of my arrival in the neighbourhood it was a common practice to dibble the seedlings into the nurseries from the seed beds without trimming the tap roots, which are always of great length even in small seedlings, consequently these roots were invariably turned, the coolies strongly objecting to the practice of the slightest care in the operation of transplanting, firmly believing in the quickest and easiest way to the end of any work they undertook.

These plants, after having reached the proper size, were again ruthlessly pulled up and again dibbled into the filled-up pits prepared for them on the cleared jungle land. This careless mode of manipulating the young Coffee plants was doubtless the cause of the numerous deaths which occurred during the ensuing dry season after planting, and the unhealthy and stunted appearance of numbers of those plants that survived, an examination of the roots invariably revealing the fact of their being distorted and twisted in all directions.

My next work of any importance on the estate was to build a house or bungalow. As may be imagined, I considered it safer to leave its construction as much as possible in the hands of the coolies or labourers on the plantation, who were accustomed to such work, contenting myself with giving instructions as to the size of the rooms. At that time, with very few exceptions, the houses in the Wynaad were what is called "wattle and daub" buildings with thatched roofs, bricks-and-mortar or timber dwellings being few and far between; and as my supervisor evidently considered a "wattle and daub" building quite good enough for any "swell gardener," I gave the necessary orders to have one built accordingly. Saplings with natural forks were cut and squared by the axe and collected from the jungle. Two tall ones were planted deep in the ground to support the ridge-pole, and the others fixed so as to support the wattle and daub walls of the house and the beams of the verandah. The house was divided into five compartments—viz., dining-room, two bedrooms, a bath room, and a pantry, the kitchen and servants' rooms being under a separate roof at a little distance. The roof was composed of whole Bamboo canes cleverly affixed to the ridge-pole, and overlaid with the same material split into laths and tied on with the inner bark of jungle saplings. Over this a thick coating of coarse jungle grass was laid, which in reality proves the best covering for houses of any description in such climates, proving cooler during the hot weather and tighter and drier during the heavy rains than any other material available. The walls were made of Bamboo, split and dressed, and interwoven like basket-work. Over this was plastered a coating of wet mud, thrown on in handfuls outside and in, which was left to dry and then smoothed over with two or three coatings of well-diluted cowdung. The earthen floors of the rooms and the verandah were then dug, well soaked with water, trodden into puddle, and levelled, receiving as a finishing touch the same number of coatings of the above-named liquid, and the building was complete.

I have already stated that the estate was situated further to the eastward than any then opened in the district, and in consequence experienced a hotter and less moist climate than any other. Indeed, I was told by old planters on my first arrival in the country that, in their opinion, a mistake had been made in opening land for Coffee so far to the eastward, and consequently out of the track of the rain clouds, and time proved the correctness of that opinion. The early spring showers seemed to shun the neighbourhood of this particular plantation, whilst falling plentifully in other localities of the district, and the Coffee blossom, instead of expanding during the month of March or April, would not make its appearance sometimes till the end of May, when the trees were in such a dried and shrivelled condition from the long-continued drought and east winds that it seemed as if a match would set fire to the whole plantation. My first year proved a moist one, rain falling early, and the few acres then arrived at a suitable age, flowered freely, and the fruit set well, but almost immediately after the trees were attacked by mealy bug, which smothered the bunches of young fruit and clung to them, effectually preventing their further development, till the beginning of the south-west rains, which cleared the trees of bug and fruit at the same time. The other two seasons that I remained on the property proved equally disastrous, though in another way. The spring flowers refused to visit the estate till too late, or till the flowers were nearly destroyed by the long drought and east winds. At the end of this time I determined to obtain another situation as soon as possible in a more favoured locality, believing as I did that nothing but disaster could result from the cultivation of Coffee

in a district subject to such long droughts, and this belief was verified by the dying out of every Coffee tree on the estate a few years later, notwithstanding every effort being made to prevent it. To be correct, this result was perhaps not solely due to the arid nature of the climate, but to that mostly, assisted by the attacks of the grub of a beetle called the borer in the Coffee districts of India, and of which I shall have something to say hereafter.

To give some idea of the effects of this long-continued dry weather, I may mention that it was impossible for a cooly to dig more than fifteen Coffee pits per diem 18 inches cube, even with the assistance of a pick and crowbar; this was their allotted task, and nothing would induce them to do more, to such an extent had the fierce sun hardened the ground. Another reason which induced me to leave the neighbourhood was the prevalence of jungle fever. The Bamboo district is notoriously fever, and there is no instance of an European escaping it for long, even with the greatest care. Good water is not to be had, and this, according to native opinion, is the sole cause of ague and fever. My experience leads me to believe that, although drinking bad water may not be exactly the sole cause of jungle fever, it has a great deal to do with it. If malaria from decayed vegetable matter were the only cause, then the forest jungles would unquestionably be the most unhealthy, and the Bamboo districts, where the annual jungle fires effectually get rid of all decayed vegetable matter over the whole surface of the land would be the most healthy, but the reverse is the case. The forest district, where streams abound and the water is excellent, but where the fires, in the way of scavengers, never reach, is comparatively healthy, Europeans escaping fever sometimes for years whilst in the Bamboo districts, where the greater part of the decayed vegetation is annually destroyed, but where the water is bad and scarce fever is always rampant, extremely weakening to the European, and deadly to the native. It would not perhaps have such a deadly effect upon the native were he in a position to obtain proper nourishment after each attack of the fever, but as the food available is the same in sickness and in health, he quickly succumbs to repeated attacks of the fever. It may be different now, but at the time of which I write the coolies on the estates were only willing to accept, at the hands of their employers, one medicine, and that medicine was quinine. This was accepted and taken willingly, and in many instances craved for, but with regard to other medicines for other diseases, if they took them at all it was invariably under compulsion.

The bulk of the labour employed on the Coffee plantations at that time was drafted from Mysore, which, as is well known, is mostly an open table land, and comparatively free from such fevers as prevail in the more wooded districts of the Madras Presidency. The labourers on first arrival on the estates were strong and healthy, but a short residence began to tell on their health, and it was no uncommon thing to have on one estate, out of a gang of from 100 to 150 men and women, fifty or sixty laid up with fever and other complaints at one time. A hospital was furnished at the chief towns or villages by the different districts, but the natives had a deep-seated dislike to take advantage of these institutions, preferring even death to being removed to them. It will easily be believed, therefore, that the death-rate amongst the imported coolies was, under such circumstances, very high indeed, but as no register was kept, the exact rate was never known. The whole of the Wynaad is one gigantic cemetery, the price paid by the Mysore coolie for the higher rate of wages he received from the English Coffee planter than that obtainable from his own countrymen in Mysore.

I was only some three months in the district before being laid up with my first attack of jungle fever, which recurred at intervals during many months. I believe I might have escaped for a much longer period had I been more careful as to exposure to the sun and as to the kind of water I drank; but as no European seems to feel the strength of the Indian sun for a considerable time after his arrival in the country, I scorned the idea of remaining under shelter during the hottest part of the day, drinking water from swamps or where I could get it, and paid the penalty of my folly in consequence. Sulphate of quinine was considered by planters to be the sheet anchor in the treatment of jungle fever, but so far as my experience went, and I took large quantities of it during my residence in the Bamboo jungles, it is by no means the specific it is supposed to be, at least so far as European constitutions are concerned. It may, however, be different with regard to the native constitution. A supply of quinine is usually kept on each estate, so that I had frequent opportunities of marking its effects on those suffering from attacks of ague and fever. In some cases it produced no effect whatever, in others the effect was rapid and good, a very few doses effectually checking the intermittent attacks, and in others, again, it acted as a charm, killing the fever at once. It was, however, quite impossible to obtain quinine in sufficient quantities to meet every case, and the mortality amongst the labourers on the plantations was very great in consequence.

Other diseases, such as diarrhoea, dysentery, ulcers, &c., were also prevalent, the causes for which might be easily traced in numerous instances to the habits of the people which will not bear describing, and any sanitary arrangement attempted by the superintendent of a plantation was almost certain to be met by a strike amongst the coolies, and very often by a gang leaving the estate without even asking for the wages due to them at the time. This course of action on the part of the labourers led to great inconvenience and loss to the planter, labour never being so plentiful at any time that the places of absconding coolies could be at once filled; so that, as a rule, the first attempt at sanitation on the part of the young and inexperienced planter was rarely, if ever, followed by a second. Yet, strange to say, the insides of their houses were kept scrupulously clean and neat.

The district was infested with all kinds of reptiles and insects, amongst snakes the deadly cobra playing a distinguished part, being frequently found coiled up in some snug corner of an outhouse or bungalow. From 6 to 7 feet is the usual length of this reptile, and when seen in a state of irritation with its hood expanded is remarkably handsome. As is well known, this snake is worshipped by the Hindoos, and is never wilfully destroyed by the higher castes. Its image is carved in granite at every temple, and the live animal, if met in the path by a Hindoo, is sure to receive a profound salaam, and to find an easy way of escape. Some idea may be formed of the number and variety of the snakes inhabiting this part of India, when I state that I once saw a collection exhibited by Colonel Beddome on the Neilgherry Hills, consisting of upwards of 300 distinct species, all collected in the Madras Presidency.

The white ant is found all over the district, rearing its wonderful dwellings in the jungle sometimes to a height of from 10 to 12 feet, and looking like huge trunks of trees in the process of decay. These earthen dwellings, or at least that part of them which appear above ground, are formed by the dust of the earth and moisture secreted by the insect itself, and withstand the continuous beating of the south-west rains without crumbling in the slightest degree. These mounds are frequently broken up and used by the native bricklayers in making roofing tiles, as the best and least porous material obtainable. The destructive powers of this marvellous insect is almost beyond belief. It will destroy almost everything it comes across not containing life, and always working in the dark and under cover of its earthen tunnels, which it forms in the course of its progress. One exception to this rule, however, I must relate. It was in Tinnevely and in broad daylight, I saw innumerable white ants issuing from a hole in the ground, without the usual shelter of their tunnels, cutting off short pieces of green grass and returning with them to the hole, for what purpose remains a mystery to me to this day. The belief amongst naturalists being, I think, that the white ant never uses any other substance for food than withered and decayed matter. Very shortly after I had completed the building of my bungalow and had gone to live in it, I found to my dismay on rising one morning several mounds of earth under the dining table, varying from 2 inches to 12 inches in height. On kicking these over the secret was disclosed. I had built my wattle and daub mansion on the top of a huge underground white ants' nest, and the insects had come up to partake of the cow dung coating on the floor, of which substance they are particularly fond. For a long time these hillocks were regularly removed each morning only to be renewed during the night, till a sound dose of paraffin oil settled the conflict.—PLANTER.

(To be continued.)

GROS COLMAN GRAPE.

I HAVE been greatly interested with the accounts published in recent numbers of the Journal of the wonderful samples of the above Grape grown by Mr. Goodacre of Elvaston Castle, particularly the berry figured on page 567 of Journal of December 23rd, and your remarks thereon. I have more than once had occasion to admire the splendid fruit exhibited by Mr. Goodacre, who has undoubtedly proved himself one of our foremost and most successful fruit growers, and deserves great credit for producing such a wonderful bunch of Gros Colman.

The figure represents the exact size of the largest berry. At first sight it does not appear so much larger than ordinary Gros Colman berries, but when measured it proves to have been a very large berry indeed; but, to my mind, the size of berry is not the most extraordinary feature of this wonderful bunch, but its weight. You report it as 7 lbs., and containing only sixty-eight berries. Is there not a mistake regarding its weight? Gros Colman is a heavy-weighting Grape I know, but I can scarcely credit ten berries weighing over 1 lb. of the size indicated, and shall be glad to hear more on the subject from those responsible for weighing it. I have this season seen many hundred bunches of Gros Colman quite as large in berry as this from Elvaston, but very far from equalling them in weight; and anyone who called at the Tweed Vineyard, Clovenfords, this season would have seen the same. Thousands of bunches are there grown annually for the London market, and one of their large 200 feet houses was most remarkable for the enormous size of the berries this season. Many berries which I was privileged to inspect and measure were nearly 5 inches in circumference. The average size of berries in the whole house—which I daresay would contain about 2000 bunches—would be $4\frac{1}{2}$ inches in circumference.

About the finest Gros Colmans I have seen—for size of bunch, berry, and finish—were exhibited at the Fruit Congress held in Edinburgh a twelvemonth past last November. They were grown and exhibited by Mr. Murray, of Park Hall, near Falkirk. Most extensive vineries have recently been erected there, and Grapes are there cultivated to a very high state of perfection indeed.

I visited these vineries last August, and there saw, what appeared to me, a rather novel method of treating Gros Colman to prevent its tender foliage being scorched, as we too often see. The practice adopted by Mr. Murray, who is an able gardener and a Grape-growing enthusiast, was simply lateral extension in the truest sense of the term. In the same house are growing Vines which had been pinched in the ordinary way, others pinched but once, and still others never pinched at all, but allowed to ramble at will, and presented a perfect thicket, some shoots even growing out of the top ventilator. The contrast in the foliage was most marked. The pinched Vines presented the usual red, scorched-like appearance in the foliage, while the unpinched ones were perfectly green

and not a single red spot perceptible, and the bunches, which were very large and handsome, were swelling their berries quite as well as those on the pinched Vines. Mr. Murray believes that Gros Colman, being such a gross grower, should not be checked by pinching but as little as possible. It would be interesting to know what some of our fruit growers think of this practice, which until last August I had neither seen nor heard of.—D. B.

BOUVARDIAS.

AMONG the host of flowering plants of all descriptions which our gardens possess now few perhaps are so really beautiful and so useful, and at the same time so generally admired, as the Bouvardia. On their beauty it is needless to offer comment, since they are on every hand always among the favourite flowers of the day. Of their usefulness few are better aware than the bouquetist, whose office it is to produce artistic work in flowers with the least possible material; and whether for ballroom bouquets or for buttonhole work they are always useful, and specially so in winter. In fact, in winter they may be said to be really in season, not because they cannot be had at any other time, for they may where they are grown in quantity and judiciously managed be had in flower all the year round, but because in summer there are so many good and choice flowers to be had possessing lasting properties to a far greater extent than Bouvardias, which suffer in a cut state in an incredibly short space of time; not so, however, in the autumn and winter months, during which time they continue to produce their charmingly compact and useful trusses of flowers, which are borne in profusion so long as the plants are kept in a sufficiently warm temperature to perfect the bloom. The effect of a few pips of the brighter-coloured varieties is simply charming when interspersed in a careful and tasteful manner among other flowers in any floral arrangement, and few flowers are more chaste or beautiful in the bridal wreath or bouquet than the pure white varieties; in fact, they are admissible in any arrangement.

It is surprising if we look at market plants as a whole how widely the manner of their disposal differs. For example, we will take Cyclamens, Mignonette, Hydrangeas, and the like, which are annually sold by tens of thousands in our larger markets as pot plants alone, while the number of Bouvardias and some others which are sold in this way is but a unit compared with the above. The actual demand, therefore, for pot plants is small, while the demand for the flowers is at all times during the autumn and winter large. Cyclamens also are in great demand as cut flowers as well as in pot plants, and invariably realise good prices. It is within the recollection of all when the Bouvardia was a very limited group indeed, and even now the number of really good varieties is anything but extensive, for progress with them is slow; still there is a wide field open for extension with improvements, and who can predict what may transpire ere this nineteenth century closes? But turning to the cultural side of the question we find quite a revolution, as formerly they were grown continuously in heated structures, which rarely resulted in good presentable or bushy plants fit for decorative purposes, and more frequently were composed of two or three sucker growths from the base, and a few pieces of wiry flowerless wood surrounding them. Not so, however, with the present system of culture for market purposes. We cannot but remark upon the admirable manner and uniform growth in which some growers turn out their plants; indeed it is not too much to add that the market grower has in many instances been the instructor of the gardener by showing how some of our most valuable winter flowering plants may be grown to perfection in an incredibly short space of time. So it is with the Bouvardia, which having emerged from our stoves and plant houses during the summer, now finds its way into the open air either grown in pots plunged in cocoa-nut fibre refuse, spent hops, or the like, or otherwise planted in the open ground. Whichever plan is adopted the plants cost considerably less in attending them, they make a cleaner and healthier though sturdier growth, and what is more than these, at least from a pecuniary standpoint, you get well matured wood, which is a sure forerunner of abundant bloom.

Dwelling for a moment on the planting-out system for Bouvardias, I may remark that it is an excellent plan for ensuring an abundant supply of these choice flowers during the summer and early autumn months, and the quantities of bloom they thus yield are made doubly valuable by the fact of their being hardily grown, and flowers do not suffer so quickly or to the same extent as when gathered from plants grown in glass structures. To ensure a yield of bloom in this way it is best to secure some of the earliest flowered batches of the previous winter, and which have produced the earliest batches of cuttings in spring, and plant them in a well prepared border, choosing a rather warm and sunny position. The dense bushes they will form during the season, and the quantities of bloom they produce in the greatest possible profusion, will be a surprise to all those who have not as yet tried the plan, and those who have tried and know its value will not readily lose sight of it. I strongly advocate its general adoption where choice flowers are in demand at all seasons, for I know of no other plant among greenhouse shrubs capable of producing such great quantities of useful bloom for so lengthened a period as these Bouvardias when thus treated. I remember the first Bouvardias I saw thus treated, beautiful dwarf miniature bushes laden with flowers. In all these were several hundred plants of the leading varieties only, and which had been little or no trouble ever since they were planted out; and the quantity of bloom which had been gathered from these plants had been considerable. These were from plants which had done duty the previous autumn and winter as pot plants, and so good was the prospect of another winter's bloom from them

that they were lifted and potted to do service again. To get plants to do this continued duty they must of necessity have generous treatment. The best way to deal with them, or at least a very good way, is after the winter flowering is complete, to let them gradually ripen by withholding the water supply and afterwards placing them in a cooler structure, and by degrees diminishing the water altogether, then placing them in any house where the temperature is about 40°. If cuttings for producing young plants are required a portion will have to be introduced into the propagating house early in the month of January; indeed, an early start means the best and strongest plants by the autumn, so the earlier the better. At this stage they may be cut back; and do not fear the use of the knife, for they may be pruned as hard as Fuchsias and break away into growth again with equal freedom. Do not place them on bottom heat at once, as this will only too hastily excite the sap, and as yet withhold water at the roots. They may, however, be syringed twice or thrice a day, which will materially assist them in forming breaks, and as soon as these appear they may be watered as they seem to require at the root and be placed in gentle bottom heat.—J. H. E.

(To be continued).

CHRYSANTHEMUMS FOR CUTTING.

ALMOST everything one reads about these is from the "show" point of view, and the uninformed have to grope their way somewhat at a disadvantage in order to learn the best sorts for ordinary demands; but it must be confessed that the man who grows for showing has a very good case to present for himself, for the reason that his blooms, though large, are nevertheless not too large for cut-flower purposes. At the same time, where we have a large amount of produce to turn out of a limited space, and with limited means for doing so, growing show blooms is a proceeding of doubtful utility. After several years of strictly home Chrysanthemum growing I have this year some on the show principle, and without doubt they are very telling—so much so, indeed, that, all being well, I intend to have a houseful of them in 1887. But not one of them has been cut, nor do I think it likely they shall be until old age plainly shows them as fit for the rubbish heap; and looking back over several years' experience with them I am obliged to come to the conclusion that blooms of the show type mostly find their way to the same place. Of course it is no blame to the flowers, but one does not care to spend twelve months in the production of a plant to carry three flowers without making the most of them when on the plant. Well, then, I think it may be considered necessary where many flowers are needed to cultivate Chrysanthemums specially for that purpose, letting the show blooms alone.

Chrysanthemums for cutting should possess certain qualities. Thus the habit of plant must be free and leading to floriferousness. The flowers should be decided in colour, or if of soft shades lacking in insipidity. Good typical sorts are Mrs. George Rundle, which, although perfect according to the florists' standpoint, is at the same time beautiful from the æsthetic point of view, and fulfils the practical requirements of the gardener. The variety Mr. George Glenny is a good example of a pleasing soft shade, and is, if anything, more productive of good blooms. Mrs. Dixon, again, represents a decided yellow, though not quite so good in other respects as the other two. Lady Selborne repays good cultivation extremely well, and does not require thinning. This variety is remarkable as being an early-flowering sort which keeps the purity of its flowers longer than any other kind. Though not so much grown as some other white varieties it would well repay more extended cultivation. The value of Elaine is now fully recognised, excelling as it does other kinds in purity, though the flowers rapidly deteriorate and assume a pinky shade after the stage of full development is reached. Fair Maid of Guernsey also well repays good cultivation. Another very good white and late is Lady Margaret of the Anemone section. Fleur de Marie we also grow. This is late, and must be well grown, when it produces most lovely quilled white blooms. Mons. Astorg grown as a flower-producing plant we find valuable as a late sort, the blooms being large and opening pure white. Timbale d'Argent, a medium-sized honeycombed variety, is wonderfully free, and though not large the flowers are very pretty. Mrs. Forsyth, of the Christine type, is very good indeed, the form of flower being distinct, and the shade inclining to cream is telling. Cedo Nulli is very good for cutting purposes; La Neige and La Vierge are both good earlier sorts. Of yellow varieties Mr. G. Glenny and Mrs. Dixon have already been noted. Golden Cedo Nulli is perhaps superior to the white recommended above. Antonelli is another very good Pompon. Chevalier Damage is perhaps the best yellow we have, and is good in all respects, the flowers being of the reflexed type. Gluck, a rather rough Anemone, is nevertheless very useful for cutting. Peter the Great, a Japanese variety, is indispensable alike on account of shade and shape of flower. Jardin des Plantes when well grown and well supplied with good manure is moderately floriferous, and the flowers are so beautiful that it can hardly be dispensed with.

In lilac shades Venus, Lady Harding, Bouquet Fait, Prince of Anemones, Madame Dorothee Souille, a lovely sort; Madame Clos, very good; Her Majesty, M. Brun, Marie Stuart (Anemone Pompon), very soft and pretty; Acquisition, a lovely shaded flower, quilled; James Salter, very good but soon loses colour. Of orange shades Source d'Or is particularly fine; William Robinson, good and pretty; Orange Annie Salter, free and good. In orange and brown L'Île des Plaisirs, small but fine; M. J. Laing is extremely good, the blooms being freely produced; King of Crimsons, reflexed, fine; Rêverie, one of the very best, the shade most telling, and shape of flower very good. Darker shades will be found in L'Africaine, a fine sort for cutting; Tokio, extremely good; Julie Lagraverre, a grand old variety, late and useful; Rex Rubrorum, very dark, free and good; Cullingfordi, very fine, dark in colour, and plant of free growth. Calliope is an Anemone Pompon, rather later but of good colour and exceedingly pretty. General Bainbridge, chestnut, is a pretty incurved sort, moderately free and good on account of colour. Cry Kang is a good variety in all respects. Le Chinois, of a port-wine hue, is most floriferous and altogether good. Margot is a peculiar shade, and is most attractive, lighting up a vase most wonderfully. Hiver Fleuri, though rather undefined as to colouring, is notwithstanding of value. La Nympe is another shade which is good for lighting up dull flowers. Triomphe du Nord is of such a peculiar hue that it has almost necessarily to be used by itself. It is a very good sort. Of purplish varieties Prince of Wales and President are both very good. All those above noted are further valuable as decorative plants, and are just the sorts to be grown by the inexperienced.—B.



FRUIT FORCING.

VINES.—*Early Houses.*—Great care will now be required in ventilating, so as not to admit draughts of cold air, which injure the foliage, causing it to become stunted, whilst a confined atmosphere causes it to become thin and poor in texture, falling a prey to red spider later on with great liability to be scorched. Disbud and tie down the shoots before they touch the glass, being careful not to bring them down too abruptly or to tie too tightly. In stopping do not confine it to any given number of joints beyond the bunch, but extend it so that an ample and even supply of foliage will be insured fully exposed to light. Remove all superfluous bunches, overcropping and overcrowding of the foliage being very adverse to satisfactory results. When the bunches come into flower maintain a day and night temperature of 70° to 75°, but with a decline of 5° through the night, and a rather drier atmosphere. Do not allow the heat to decline in fermenting beds about Vines in pots nor in the ridges of such in houses, but keep a good heap of Oak leaves and stable litter in the reserve ground to admit of a supply being obtained as required.

Houses to Afford Ripe Grapes in June.—The Vines must be started at once. If the roots are outside they will have been protected with a good thickness of dry litter or fern, with tarpaulin, wood shutter, or lights to throw off rains and snow, and they will have secured to them a much higher temperature than if there had been no such protection, therefore fermenting materials in such circumstances may be dispensed with, but the borders having been exposed to cold rains and snow, the temperature of the soil will be little if any warmer than the surrounding ground, and a good bed of fermenting materials can be used with advantage, placing it on the border about 18 inches thick, and protecting with shutters. Supply the inside borders thoroughly with tepid water, or at 90°. To economise fuel employ fermenting materials inside the house, also as a source of a genial warmth and moisture constantly, and turn it over frequently to liberate the ammonia, adding fresh material as necessary. Where fermenting materials are not obtainable the available surfaces may be sprinkled, but not the rods, with liquid manure daily. The temperature should be 50° to 55° by artificial means, and 55° from sun heat.

Pruning, &c.—Vines from which the Grapes have been cut should be immediately pruned. Cut to a plump bud as near to the base as possible; but as some Vines do not prove very satisfactory closely pruned, the operator must be guided accordingly, and choose the best bud on firm well-ripened wood wherever situated, which will cause the spurs to become long; but that can be obviated by training a shoot from the base to displace it after fruiting, and the Vine will show in the good finish of its crop the advantage derived from the extra foliage. The spurs under any circumstances will become long in time, but it is easy to train up young canes. Remove all loose bark, avoid peeling and scraping, washing with soft soap and water. Thoroughly cleanse the house, surface dress the borders, clearing off the loose surface, using fresh loam with about a twentieth of bonemeal intermixed. Keep the house as cool as possible to secure complete rest.

Late Grapes.—Maintain a mean temperature with a dry atmosphere

in houses where Grapes are hanging. Examine every bunch frequently and remove all decayed berries. Ventilate the house on fine dry mornings, and keep it closed when the weather is damp. The Grapes may be cut, the ends of the stems being inserted in bottles of rain water secured in an inclining position so as to admit of the fruit hanging clear of the bottles. Failing a Grape room, any dry room will be a suitable place where an equable temperature of 40° to 45° is maintained. This will admit of the Vines being pruned and the house being cleaned.

FIGS.—Early Forced Trees in Pots.—When the trees are advanced in growth the temperature should be gradually raised to 60° at night and 65° by day from fire heat, with 70° to 75° from sun heat, commencing to ventilate at 70° and closing at 75°, but avoid a high temperature by artificial means, as the sturdier and shorter jointed the young shoots can be kept the greater will be the chances of a satisfactory early crop. Syringe the trees and house twice a day, in the morning and again at closing time; but avoid a saturated confined atmosphere in dull weather. As the fermenting materials settle firmly about the pots add more fresh leaves, bringing them nearer to the rims of the pots, taking care that the heat about them does not exceed 70° to 75°. Water the trees as required with weak liquid manure, and place some turves about 2 inches thick, grass side down, on the surface of the pots around the rims, extending over the sides towards the fermenting materials, with a view to encourage the surface roots. These should be watered with weak liquid manure so as to keep them moist, filling the space between the turves and stems of the trees with well-decayed manure.

CHERRY HOUSE.—The house having been closed about the middle of last month, fire heat may be applied to secure a night temperature of 40° and 45° by artificial means, and 5° more by day, allowing an advance of 5° to 10° from sun heat, admitting air abundantly in mild sunny weather. See that there is no deficiency of moisture in the border, and attend with regularity to watering trees in pots. Syringe the trees and house occasionally. If any of the trees are found unsuitable, this is a good time to change them. Trees which have been trained to a wall for three or four years are the best, planting them in fresh loam. May Duke, Black Tartarian, Governor Wood, and Elton are suitable varieties.

PINES.—Fruiting Plants and Starters.—These must now have a mean temperature of about 70°, varying it 5° according to external influence, admitting air at 80° with sunshine, but not lowering the temperature, allowing it to rise to 85°, and closing at 80°. Syringe all available surfaces twice a day, but do not syringe the surface of the bed between the plants. Avoid producing dense steam by syringing highly heated hot-water pipes. Syringe the plants occasionally early in the afternoon when the axils of the leaves become dry.

Plants for Successional Fruiting.—Early in February another batch of Queens should be started to supplement the supply of fruit from those plants which are already introduced for that purpose. Beds that have the bottom heat afforded by hot-water pipes can soon be prepared for the reception of the plants, but it is not the case where fermenting materials are employed, hence the necessary steps must be taken at once to get the needful beds made, and 85° to 90° of bottom heat secured by the time required. When plants that have been kept somewhat dry are to be started, see that the soil is thoroughly moistened, so that with the extra warmth root-action may commence at once.

A night temperature of 60° to 65°, and 5° less in severe weather, will be suitable for successional stock, and 5° to 10° more in the daytime, according to external conditions.

PLANT HOUSES.

Amaryllises.—Young plants that are not strong enough to flower make capital bulbs if they are given a long season's growth under suitable conditions. For this purpose prepare a quantity of litter and dry leaves, to make up a bed in a pit provided with a flow and return pipe, or in a low, small structure. The young plants can be turned out of their pots, and the old soil removed from their roots and placed in slightly larger well drained pots, in a compost of fibry loam, leaf mould, sand, and about one-seventh of decayed manure. When the bed is ready they should be stood on the surface or plunged, and under such genial treatment will soon start into growth. Strong well ripened flowering bulbs may be repotted in the same manner, and introduced into the forcing house in batches to bring them into flower. After flowering they can be encouraged to complete their growth with the young stock. The stock can be increased by seed, which can be sown at once in light sandy soil, and will soon germinate in a temperature of 60° to 65°.

Begonia weltoniensis—A few plants of this Begonia, also B. Dregei, as well as other half tuberous forms may now be cut back and their roots steeped in tepid water. If stood, after they have drained, on the fermenting material in the forcing house they will quickly break into growth. When in this condition they should be turned out of their pots, the old balls partially reduced and the plants repotted in the same sized pots in a compost consisting of two-thirds loam to one of leaf mould or old Mushroom bed refuse; if the former, add one-seventh of decayed manure and plenty of sand. A few tuberous varieties may also be started in a box amongst leaf mould for early flowering. Any small tubers of good sorts that it is necessary to grow into large plants may be started at once, so that a long season's growth can be accorded to them.

So's.—A good stock of leaf mould, manure, loam and peat should be placed under cover in readiness for the time when it will be required for potting in large quantities. The first should be passed through a three-quarter-inch sieve, so that all small pieces of wood and coarse matter can be removed, so that when wanted it only requires taking from the bin and placing on the bench, or carrying to the various houses where the

potting is to be done. Manure that was stacked under cover in autumn will now pass freely through a fine sieve, and should then be stored in a dry cool shed where it will not bake. If the manure to be used eventually is not in this satisfactory state, expel the moisture from it by filling boxes and baskets and placing them for a time in the boiler house. It must not be unduly dried; just sufficient to rub it through a sieve. Artificial manures for the year's supply may also be ordered in readiness, also bonemeal and quarter-inch bones. The loam must be chopped to pieces or broken up with the hand; if the first, it must pass through the hands to remove worms. To save time, when potting has to be done, place a good portion through a 1-inch sieve. The quantity that falls through will be suitable for small plants, cuttings, and other similar purposes, while the remainder will be ready for choice plants. A good stock with the fine left in should also be prepared. The same may be said of peat. This should be sorted into three distinct heaps, the most fibrous for Orchids, from which all the soily particles should be removed; this will be suitable for small Ferns, and a variety of purposes. That of the hardest nature may be reserved for hardwooded plants, and the lightest for Ferns. The whole of the peat can be broken with the hand, and all Fern rhizomes, &c., removed, for they are very apt to create fungus about the roots of the plants when they decay. Wood ashes should be passed through a fine sieve and placed in a shed. Charcoal can be sorted and broken in readiness. Clay should be dried and reduced to powder, then it is ready for incorporating with the soil for Roses or any purpose for which it may be required.



THE HIVE OF THE FUTURE.

It is impossible to say that a hive of a certain description will be in general use in the apiaries of this country during the next ten years, but it is comparatively easy to give what appear to be the essential and characteristic features of a good serviceable hive. Leaving, therefore, to others the labours of bringing into being a hive which shall combine all that is useful in the hives of the present day with the new discoveries which may from time to time be made and used by those whose duty it is to provide the amateur with appliances for the apiary, I will content myself with discussing the principles upon which each one should work if he wishes to make a good serviceable hive without more than absolutely necessary labour and expense.

In hive construction it must not be forgotten that even if this year it is more profitable to work for comb honey, in a future year the order of things may be reversed by a change in the relative values of comb and extracted honey. To purchase or construct a hive lending itself only to the production of one kind of honey may lead to much loss and vexation, and every hive ought therefore to lend itself easily to the production of both comb and extracted honey without more than absolutely necessary extra outlay. It will be evident that if extracted honey has been produced last year, and next season we desire to obtain honey in sections, that "racks" must be made or purchased, but my contention is that the body hive or the brood chamber ought to need no change whatever in any shape or form. A hive, therefore, which is equally suitable to the production of honey in the comb or extracted is the one in which money may most safely be invested. The next question seems to be the advisability or not of adopting the "standard" frame. That this frame is not by any means perfect even its most ardent admirers may well confess, but taking into consideration the thousands of these frames now in use it would seem to be the wiser policy in starting an apiary to use hives containing this almost universally adopted frame. The chief defect in the standard frame is that it is too shallow; but this evil may be remedied to a large extent without much difficulty.

A model hive seems to be one deep rather than long and broad, and of this type the "Refrewshire Stewarton" is an excellent example. If I were starting a large apiary in this country the hive which I should choose would be one with standard frames—not more than twelve in number. On this, if working for extracted honey, several tiers of frames would be successively placed, while if sections were required after

placing one tier of frames on the brood chamber I should begin to tier up racks of sections in the usual manner. Twelve frames would be too small for a good queen—at least, they would only give sufficient room for egg-depositing without leaving room for the storage of pollen and honey, but by placing a tier of frames upon the brood chamber space is afforded for storing the honey, and if necessity should arise for an extension of the brood nest itself. In addition to this advantage a breadth of honey would intervene between the brood nest and the sections. In winter I should be guided by circumstances; in some seasons two tiers of frames—the body-box and a super-tier—might be allowed to remain, in others the body box alone.

The chief defect in such a hive as that described is the space between the top of the frames in the body of the hive and the bottom of the frames in the super-body. These bee-spaces are a decidedly weak point in such a hive, but at present there appears to be no way of obviating the difficulty. True, half bee-spaces have been introduced, but the only benefit to be derived from them is that the hive becomes more easily reversible—an uncertain advantage, if we may judge from the very contrary opinions expressed by those who have made a trial of the reversing principle. We must therefore, as far as I am able to see, take our choice of two things—either we must use a deep frame, or we must use two tiers of standard frames with a bee-space between the upper and the lower tier. A deep frame is not very convenient, while more than twelve standard frames in one length are not advantageous, although in the hands of an experienced man I believe that any here will give grand results. Metal ends may be dispensed with, but distance pins may be used, at any rate for a time, until they also may with safety be discarded. In the matter of roofs there is little to say except that they must be made so that they can be handled with ease, and are a sure protection from the weather. They are most convenient when made in sections, so that when adding say two racks of sections, an outside case is slipped over them and the roof on the top of that. As many of these outside coverings should be made as may be calculated to be necessary. But room for an extra rack or tier should always be afforded, even after allowance has been made for the best of seasons requiring an extra number of supers. It is far better to have a little too much room than even an inch less than is required.

Floorboards may be of two principal kinds, either “ventilating” or ordinary. Perhaps for the majority of bee-keepers a ventilating floorboard may be useful, but hitherto it has never been necessary in my apiary. “A Lanarkshire Bee-keeper,” whose long experience has no doubt shown him the practical utility of the floorboard he so constantly urges upon bee-keepers to adopt, is so trusty a guide that, although not using anything but the ordinary moveable floorboard myself, I would advise those who have not hitherto done so, and whose bees have suffered in the past from an excessive mortality at any time during the autumn or winter or spring months of the year, to try the effect of this certainly very easy and practical way of keeping a hive dry and warm and free from damp. Double walls are, I believe, in many ways an advantage, but they make a hive heavy and unwieldy. It is quite a matter of individual taste, for single walls of good sound timber will preserve bees through the coldest of our winters if sufficient care is taken to have them well packed up; but for an apiary in which the hives are stationary from year's end to year's end I prefer double walls.

Simplicity and usefulness will in the main be the chief characteristics of the future hive; frames and walls, roof and floorboard, of plain and unpretending form, will in time to come prove most acceptable to bee-keepers; reversing, metal ends, and other contrivances, will die away and leave a hive of simple construction unencumbered by so-called improvements to supply the wants of the consumers of honey in the coming generation. The sooner such a hive is adopted the less we shall hear of foreign competition; the

longer the adoption of such a hive is delayed the more keenly we shall feel the decline in prices likely to be experienced in future years. The friends of the British bee-keeper must urge upon him the necessity of rigidly neglecting new hives and new appliances, of practising the strictest economy, of being determined to overcome all obstacles, and by wise management to produce more honey in the future than in the past, and to produce that honey at a less price than he has been accustomed to regard as profitable in the time of good prices and ready sale. All this may be done by using simple and inexpensive yet efficient hives, and by acquiring a thorough and intelligent knowledge of bees and their management.—FELIX.

CYPRIAN BEES.

“A NOTTS BEE-KEEPER” wishes to know the average yield per hive of Cyprians for a few years past. I have never troubled in taking the average, my object always being to make the most of every hive, and managing them so as to bring them up to the highest standard of weight and everything else, always keeping the future in view, so that no sacrifice would render my efforts abortive the ensuing year.

If “Notts Bee-keeper” has been an attentive and constant reader of this Journal for some years past, he must have observed the accounts of the doings of my bees, and I would particularly call his attention to the number for October 14th, which contains the particulars and results of many hives at the Heather.

One thing was not recorded, but which I think is relevant now. I stated that there is a good deal of rivalry amongst bee-keepers as to who will have the heaviest bives; it is a wholesome competition, and causes much innocent discussion and not unfrequently much amusement. On the 4th of September last a number of us went to see our bees at the moors. As mine were probably the strongest and myself the weakest, they were the first visited, because they were set nearest the station and furthest from the Heather. On my approach I immediately examined the likeliest hives with supers, and finding them less forward than I expected, made it known to my companions in the following words: “They had as yet done little,” meaning the supers only, but which was construed by them as the total make. After they had examined and weighed their own bives they concluded theirs bad far outstripped mine, and chaffed me much over their supposed victory. I knew that there was a day of reckoning coming, so kept silent. There were two companies of us, the hives of which occupied two trucks. On reaching home, and while discharging our respective trucks, I called upon a “Hercules” at least 6 feet 4 inches high, and otherwise well proportioned. “You have heard,” I said, “how that truck of bees containing yours was so much heavier than ours in this one.” “Yes,” was the reply. “Come, then,” I said, “and feel the weight of them, and give your verdict.” He did so, and exclaimed to the discomfiture of his party that each one of ours was as heavy as five of theirs.

I had my first Cyprian queen presented me by Mr. A. Neighbour in 1877 and bred from it; and since 1878 they, unlike other bees, have kept themselves without receiving any artificial feeding whatever, and have given a surplus of honey every year since, and in years too when other hives yielded none, and at the present these stocks will weigh between 60 and 70 lbs. of combs, store, and bees. So it will be observed that feeding will be unnecessary this incoming season either.

If “Notts Bee-keeper” has not read the article referred to, nor those containing the information on the proper and profitable management of bees, I shall be glad to give a few introductory remarks for beginners or those unacquainted with the rudiments and scientific management of bees; but I observe “Notts Bee-keeper” has been reading, because he says, “I and many more are in a fog. We keep reading of the wonderful doings of these foreigners, but cannot get them to do it.” Reading alone, without thinking and acting, will not attain the end in view. Then, of more importance still, Does “Notts Bee-keeper” and his friends act according to the instructions given in this Journal?

It is but a few weeks since a question was put in a contemporary, “Which is the best book on bees for a beginner?” I observed several answers naming a certain book as “the best book on bees.” The said book I had not seen, but shortly after saw it through the kindness of a friend. I then scanned its pages, and found it contained not only errors of fact, but recommended hives and a system of manipulation from the beginning of the year till the end of it, which if we adopted our harvests of honey here in the north would be nil. Our system of management is the only one that we can depend on in getting good returns; and if we were in the sunny south the same system would also be the one that would give the largest returns with least trouble and the least outlay. The breed of bees in this district are so mixed that it is impossible to make comparisons, but that can still be done at the moors; and as I have so often pointed out that fair trials and comparisons can only be made when hives are placed together. There are localities situated only three miles from each other that bees will gather at one locality a large quantity, while at the others little or nothing will be obtained.

The Cyprian and Syrian races of bees are very prolific, and to give them a chance to make weight and remunerate their owners the hives must be large, as large again as most of the hives in use at the present day. Doubtless there has been a movement of late to adopt the tiering

or Stewarton system, which has been in use in Scotland for at least two centuries, perfected there, and at the present moment has not been improved upon. It is true there are hives which some claim as late inventions, such as the Carr Stewarton and the Heddon hive, but anything of worth in these hives is not new, and what is new is not of much worth. Forty years ago I had fifty of the square type of Stewarton or Lanarkshire hives, and with but slight difference is the same hive I mostly use and recommend, and which I gave instructions how to make in a late number, and if adopted by "Notts Bee-keeper" and wrought according to my instructions I fear not but his Cyprian or Syrian bees will "do it;" at least they have done it, and well too, with—A LANARKSHIRE BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

James Dickson & Sons, 108, Eastgate Street, Chester.—*Catalogue of Vegetable and Flower Seeds, 1887.*

Robert Veitch & Son, 54, High Street, Exeter.—*Catalogue of Kitchen Garden and Flower Seeds, 1887.*

William Paul & Son, Waltham Cross.—*Catalogue of Vegetable, Flower, and Agricultural Seeds.*



All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

The Eucharis Mite (W. E. P.).—The bulb you have sent is seriously attacked with the above pest. We shall publish an article on the subject soon, perhaps next week.

Exhibiting Rhubarb (New Year).—Rhubarb is certainly not a fruit any more than Seakale is, and cooking and sweetening it cannot make it a fruit. It can be staged in a collection of vegetables, unless specially excluded, committees of shows having the right to make stipulations excluding Rhubarb or anything else from any particular class. First-class Rhubarb would carry more points than Carrots at this time of the year with most good judges; but if superior Carrots were staged against inferior Rhubarb, then the same judges would give preference to the former.

Loosening Peach and Nectarine Trees from Wall (A Foreigner).—It is an old and excellent practice. Loosening the trees from the wall keeps them cooler and insures more perfect rest than when secured to the wall, retards the flowering considerably, besides facilitating pruning operations, making sure that the branches do not suffer from being too tight, and allowing the rearrangement of the branches and shoots so as to preserve the symmetry and equal distribution of the wood. It entails considerable labour, but it pays in the crops, the credit of the cultivator, and the health and longevity of the trees.

Snow and Vegetation (A Young Gardener).—Snow is only injurious, so far as we know, when its weight is so great as to break branches from trees, or bend them down so that they cannot very well be placed in position again; also when it crushes and in that way spoils any plants that cannot resist its weight. For the reason indicated it is often advisable to promptly shake the snow from slender Conifers and brittle trees and plants. By promptly we mean before the snow melts; but in the great storm that visited the south of England on the Sunday night following Christmas Day the snow was not dry, hence adhered closely on whatever it fell. On that account, together with the time of the fall, it could not be removed even if the necessity for shaking it off was recognised, hence the injury that was done was practically unavoidable. To low-growing crops generally snow is the best of protectors against severe frost, and if they are buried for weeks they do not suffer through the interment. In some districts in which severe frost has prevailed the absence of snow is much regretted by both farmers and gardeners, the former fearing their Turnips and Wheat will suffer, the latter being uncomfortable about the exposure of their Cabbages, Winter Lettuces, Spinach, and other crops that would be safer if under the snow.

Nitrate of Soda for Vine Borders (J. D.).—It is not usual to apply nitrate of soda to Vine borders, nor is it generally advisable, as ample saline matter is had from the manures applied, especially when the drainings of stables and cow byres are used. It may, however, be given to weak Vines or those that have small foliage, and with advantage, applying it at the rate of 1 lb. per square rod in March or early April, which is sufficient for the season. We have also known nitrate of potash (saltpetre) to be used with good effect, and in much the same way as nitrate of soda acts by increasing the vigour of the Vines, especially the foliage. It should be

applied in spring and at the rate of 1 lb. to a square rod (30½ square yards). Only one of the substances named must be given at a time, but both are most efficacious in combination with other substances. Be careful to dispose it evenly over the surface.

Zonal Pelargonium Leaves Spotted (C. E.).—The leaves are spotted in consequence of imperfect elaboration of the sap or of moisture being condensed upon them and remaining upon them for some time. The soil is also too rich and wet. The only remedy is to keep them rather drier at the roots, not watering until the soil becomes dry, but not allowing the foliage to become limp before giving a supply, when it should be thorough. A little air should be admitted in all but very severe weather, so as to prevent a close-vitiated atmosphere, and to prevent moisture accumulating on the foliage as well as to cause that to evaporate and assimilate the sap. To effect this you will need a temperature of 50° to 55°, with an advance of 5° to 10° from sun heat. With careful watering the plants will soon recover, and may be given liquid manure occasionally, which will much invigorate them, causing them to outgrow their present condition. They require a warmer and more genial condition of the atmosphere.

Seakale from Roots and Seeds (D. Marsden).—Plants are easily raised by both methods, but the largest and most successful growers of roots and strong crowns for sale, for forcing, almost invariably adopt the latter method of increase. When they raise plants from seed it is usually with the object of affording a supply of small clean "bongs" or roots for cuttings. These are cut in lengths of about 5 inches when the Seakale is taken up in late autumn, the upper end of each cutting being severed straight across the lower end slantingly. They are then packed in layers with leaf mould. Cocoa-nut fibre refuse, ashes, or light soil, with the thick ends outwards, the whole forming a stack or cone, and covered with litter in sharp weather. Buds form at the ends of the cuttings, and these, if planted in rich soil in spring and encouraged to grow freely through the summer, develop fine crowns in the autumn of more value to the growers than are seedling plants, though these latter often form very useful crowns for forcing.

Pear Trees not Fruiting (Chrysanthemum).—The trees making plenty of wood and flowering well, but perfecting no fruit, indicates that the buds are not well matured, which may arise from the trees being crowded with wood, so that air and light cannot influence the elaboration and assimilation of the sap and its concentration on the fruit buds. Being so near the attainment of your desire, we should, in the coming season, merely thin the wood during growth, so as to admit light and air to all the parts left, the side shoots being stopped in June or not later than early July to four or five leaves, leaving the leading shoots entire, which should be cut back in autumn as necessary to preserve the symmetry of the trees, but the less the better; the side shoots being stopped through the season and superfluous ones removed, and in autumn cut back shoots not having formed spur buds to as near the main stems as practicable, being careful not to injure the blossom buds. This practice would in all probability have the desired effect, your case being different from those in which the trees have an excess of vigour and do not form fruit buds so sparingly. In the latter case root-pruning is advisable, and is best done in autumn, but it may be done now or as soon as the weather is favourable, up to the time the trees swell their buds, forming a trench one-third the distance from the stem the trees are in height, and below the roots, so that all the roots except the small fibres extending into the trench are cut through. Then fill the trench again and make it firm. Surface-rooting should be encouraged by removing the surface soil down to the roots and supplying fresh loam to which has been added a fourth of well-decayed manure, but the roots must not be covered deeper than 3 inches, and during summer supply water in dry periods. Attend to the growths as advised, and we think your trees will afterwards fruit satisfactorily. "Tapping" is a practice not to be recommended. The chief thing is to keep the growths thin and encourage surface roots.

Dressing Vines (W. D. K.).—When you prune the Vines cut them closely, including portions of old spurs, for in these mealy bug and other insects often establish themselves. All loose bark from the Vines should be removed, even for an inch or two into the border, being careful to remove all loose material from about the spurs. Then wash the glass and wood-work thoroughly with a strong solution of softsoap and hot water. For this purpose 3 ozs. of softsoap may be dissolved in each gallon of water. The whole of the walls if they have been limewashed should be scraped so as to remove all loose portions, and then thoroughly washed afterwards with the softsoap solution. This being done paint the woodwork, wires, walls, in fact everything in the house in which insects can secrete themselves, with petroleum. While doing this be careful that the petroleum does not fall upon the Vines. The Vines should now be washed with a solution of softsoap, 2 ozs. to each gallon of water as hot as you can bear your hands in, or a solution of Fir-tree oil or Lemon oil, both good for this purpose, may be used at the strength advised by the vendors in each case. Old hollow spurs must be well cleaned out with the knife, then wash them with a small stiff brush. The Vines can now be tied to the wires, the walls limewashed—if they have not been previously done—using the lime as hot as possible, and in a 3-gallon bucket of this stir one pint of petroleum. If you can paint the wires and woodwork afterwards with lead paint do so, but allow the petroleum to thoroughly evaporate first, which will take, say a week, or it will turn the paint yellow. While the petroleum is evaporating remove the surface of the border, in fact this should be done at once after cleaning the house. Brush all loose material from the surface of the border, and then syringe it liberally with 1 oz. of petroleum to each gallon of water. Syringe alternately into the bucket or can and on to the border. The surface soil should be removed down to the roots, brushing from amongst them all small particles. Top-dress the border with a compost of fibry loam, manure, wood ashes, or soot, and bones. To five barrowfuls of the first add one of manure, one of wood ashes, and about one-sixth inch potful of half-inch bones, with the fine portion left in to each barrowful of soil. If you have to remove much surface soil you may also add one barrowful of old lime rubbish to each five barrowfuls of loam required. If the border is poor and the Vines lack vigour add two barrowfuls of manure instead of one; you can also mix with the compost a little artificial manure. You should be the best judge of the condition of the border and how to act in this matter, but if we can aid you in any particular we shall be pleased to do so. The pipes must be cleaned and painted with lampblack

and boiled oil. The floors if of stone can be cleaned with chloride of lime. A little of this should be mixed in a bucket with water, then rubbed on to the stonework thinly with an old brush, then scrub it gently, merely moving it about until it froths, when it will not only destroy insects but any vegetation that may have established itself in the stonework. It must then be washed off thoroughly. This is all you can do until you apply heat to the Vines, then you must examine them every alternate day and search for bug. If you clean the Vines thoroughly and search thoroughly afterwards you may clear them in one season. If the details given are carried out the scale will be destroyed by the same means, and if you treat the Vines well another season you may not be troubled with either spider or thrips.

Names of Fruits.—The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and surplus fruits beyond that number cannot be preserved. (*H. H.*).—1, St. Sauveur; 2, Small's Admirable. (*H. J. Cassin*).—The three Apples are Barton's Incomparable, the others cannot be identified. (*Hortus*).—Glou Morceau.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (*Aluquis*).—Petasites fragrans, the Winter Heliotrope. (*T. S.*).—The two small Orchid flowers sent in a match box under the name of Dendrobium Farmeri album resemble Dendrobium cretaceum, but as they suffered considerably in transit they cannot be determined with certainty. (*W.*).—Eupatorium riparium. (*R. O. B.*).—The purplish flower is *Lælia anceps*; the other is *Zygopetalum Mackayi*.

COVENT GARDEN MARKET.—JANUARY 5TH.

SINCE the holidays our market has been very dull, scarcely any business doing.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.			
Apples	1	6	to	4	0	Melon	each	0	to	0	0	
„ Nova Scotia and						Oranges	100	6	0	12	0	
Canada, per barrel	10	0	13	0		Peaches	per doz.	0	0	0	0	
Cherries	1	0	0	0		Pears	dozen	1	0	2	0	
Cobs	100	lb.	60	0	70	0	Pine Apples English ..	lb.	1	6	2	0
Figs	dozen	0	6	0	9		Plums	1/2 sieve	1	0	2	0
Grapes	lb.	0	6	3	0		St. Michael Pines ..	each	2	0	5	0
Lemons	case	10	0	15	0		Strawberries	per lb.	0	0	0	0

VEGETABLES.

		s.	d.		s.	d.			s.	d.		s.	d.
Artichokes	dozen	1	0	to	0	0	Lettuce	dozen	1	0	to	1	6
Asparagus	bundle	0	0	0	0		Mushrooms	punnet	0	6	1	0	
Beans, Kidney ..	per lb	0	6	1	0		Mustard and Cress	punnet	0	2	0	0	
Beet, Red	dozen	1	0	2	0		Onions	bunch	0	3	0	0	
Broccoli	bundle	0	0	0	0		Parsley	dozen bunches	2	0	5	0	
Brussels Sprouts ..	$\frac{1}{2}$ sieve	2	0	2	6		Parsnips	dozen	1	0	2	0	
Cabbage	dozen	1	6	0	0		Potatoes	cwt.	4	0	5	0	
Capsicums	100	1	6	2	0		„ Kidney	cwt.	4	9	5	0	
Carrots	bunch	0	4	0	0		Rhubarb	bundle	0	2	0	6	
Cauliflowers	dozen	3	0	4	0		Salsafy	bundle	1	0	1	0	
Celery	bundle	1	6	2	0		Scorzoneria	bundle	1	6	0	0	
Coleworts	doz. bunches	2	0	4	0		Seakale	per basket	1	6	2	0	
Cucumbers	each	0	3	0	4		Shallots .. .. .	.. lb.	0	3	0	6
Endive	dozen	1	0	2	0		Spinach	bushel	8	0	4	0	
Herbs	bunch	0	2	0	0		Tomatoes .. ..	.. lb.	0	6	1	0
Leeks	bunch	0	3	0	4		Turnips	bunch	0	4	0	0	

PLANTS IN POTS.

		s.	d.		s.	d.			s.	d.		s.	d.
Aralia Sieboldi ..	dozen	9	0	to	18	0	Ficus elastica ..	each	1	6	to	7	0
Arbor vitæ (golden)	dozen	6	0		9	0	Fuchsia ..	per dozen	0	0		0	0
„ (common) ..	dozen	6	0		12	0	Foliage Plants, var.	each	2	0		10	0
Azalea	per dozen	24	0		43	0	Hyacinths ..	per dozen	9	9		12	0
Bedding Plants, var.	doz.	0	0		0	0	Hydrangea ..	per dozen	0	0		0	0
Begonias	dozen	4	0		9	0	Ivy Geraniums	per dozen	0	0		0	0
Chrysanthemum ..	dozen	4	0		12	0	Lilium anatum ..	per doz.	0	0		0	0
Cockscombs ..	per dozen	0	0		0	0	Lobelias	per dozen	0	0		0	0
Cyperus	dozen	4	0		12	0	Marguerite Daisy	dozen	6	0		9	0
Dracæna terminalis	dozen	30	0		60	0	Mignonette ..	per dozen	3	0		6	0
„ viridis ..	dozen	12	0		24	0	Musk	per dozen	0	0		0	0
Erica, various ..	dozen	9	0		12	0	Myrtles	per dozen	6	0		12	0
„ hyemalis ..	per dozen	12	0		24	0	Palms, in var. ..	each	2	6		21	0
„ gracilis ..	per dozen	9	0		12	0	Pelargoniums, scarlet	doz.	6	0		9	0
Eunonymus, in var.	dozen	6	0		18	0	Poinsettia ..	per dozen	12	0		0	18
Evergreens, in var.	dozen	6	0		24	0	Primula sisensis	per doz.	4	0		6	0
Ferns in variety ..	dozen	4	0		18	0	Solanums ..	per doz.	9	0		12	0

CUT FLOWERS.

		s.	d.		s.	d.			s.	d.		s.	d.	
Abutilons ..	12 bunches	2	0	to	4	0	Lily of the Valley, 12 sprays	2	0	to	4	0		
Arum Lilies ..	12 bunches	0	0	6	0		Marguerites ..	12 bunches	2	0	6	0		
Asters ..	12 bunches	0	0	0	0		Mignonette ..	12 bunches	1	0	3	0		
Azalea ..	12 sprays	1	0	1	6		Narciss, Paper-white, bunch	0	4	0	6	0		
Bonvardias ..	per bunch	0	6	1	0		„ White, English, bunch	1	3	1	6	0		
Camellias ..	12 bunches	2	0	4	0		Pelargoniums, per 12 trusses	0	5	1	6	0		
Carnations ..	12 bunches	1	0	3	0		„ scarlet, 12 trusses	5	0	9	0	0		
„ ..	12 bunches	0	0	0	0		Roses ..	12 bunches	0	0	0	0	0	
Chrysanthemums	12 bunches	6	0	12	0		„ (indoor), per dozen	0	6	2	0	0	0	
„ ..	12 bunches	0	6	2	0		„ Tea.. ..	per dozen	0	9	8	0	0	
Cornflower ..	12 bunches	0	0	0	0		„ red	per dozen	1	0	2	0	0	
Dahlias ..	12 bunches	0	0	0	0		Parma Violets (French)	4	6	5	9	0		
Euphyllum ..	doz. bunches	0	6	0	0		Poinsettia ..	12 bunches	4	0	9	0	0	
Eucharis ..	per dozen	4	0	8	0		Primula (single)	per bunch	0	4	0	6	0	
Gardenias ..	12 bunches	6	0	12	0		„ (double)	per bunch	1	0	1	6	0	
Gladioli ..	12 bunches	0	0	0	0		Pyrethrum ..	12 bunches	0	0	0	0	0	
Hyacinths, Roman, 12 sprays		1	0	1	6		Stocks, various	12 bunches	0	0	0	0	0	
Lapageria, white, 12 bunches		2	0	4	0		Tropeolum ..	12 bunches	1	6	2	0	0	
Lapageria, red .. 12 bunches		1	0	2	0		Tuberose ..	12 bunches	1	0	2	0	0	
„ longiflorum, 12 blms.		6	0	8	0		Violets ..	12 bunches	1	0	1	6	0	
Lilac (white), French, bunch		6	0	8	0		„ Czar, French, pe bunch	1	6	2	0	0		



A WELL-STOCKED HOMESTEAD.

IN Whittaker's Almanack for the new year we have a large mass of statistics of immense significance and importance. Those found under the heading of "Our Food Supplies from Abroad," serve to enforce our teaching so strongly that we transcribe a few of them here as tending to show by the logic of facts that it is possible for the special produce of farm homesteads to assume a much more important place among farm produce generally that it has done hitherto.

Last year the butter and cheese imports were valued at £15,630,000, and we are very sensibly reminded that, while complaints are made of the unremunerative character of ordinary British farming, a suggestion is frequently proffered that arable lands might be advantageously changed to pasture. The demand for dairy produce at home, beyond what native factors furnish, is enormous. Foreign eggs come to us in very large and greatly increasing quantities. Last year we received upwards of 1,000,000,000 from foreign importers, the exact number being 1,002,788,000, at a cost of £2,931,237, which number, it is calculated, gave of those retained for home consumption between twenty-seven and twenty-eight per head of the population of the United Kingdom.

Of bacon and hams we imported 4,058,454 cwts., at a cost of £8,685,668; of pork 383,636 cwts., for £689,731; and of lard 871,210 cwts., at a cost of £1,606,485; so that we find the enormous sum of £10,981,884 paid to the foreign producer of pork in one form or other. We quote this wonderful array of figures confidently, for our authority is a safe one, and they are quoted hopefully in view of inciting farmers generally to turn home-grown corn to profitable account by pig-feeding—aye, and by the curing of hams and bacon too. We would have all little porkers of about 40 lbs. weight sold either alive or dead as pork, but depend upon it there is "money" in converting larger pigs into bacon. Why is it that Wiltshire bacon continues to command such an exceptionally high price in the market? Simply because special pains are taken in curing it. If it answers best to singe the hairs instead of scalding the pork intended for bacon in Wiltshire, why, in the name of common sense, cannot it be made to answer elsewhere? Low prices cannot yet be said to render pig-farming unprofitable, for it is notorious that for some time past pig sales have proved much more profitable than either cattle or sheep. Poultry and pig-keeping could be taken in hand with greater facility than anything else in farming by farmers generally, because a comparatively moderate amount of capital is sufficient for a beginning, and there is a speedy return of interest upon outlay.

Of cattle in connection with the homestead we would fain speak favourably were it possible to do so, but we cannot. The most favourable calculations fail to show a margin of profit upon cattle fattening other than the manure. Even that is questionable, for having regard to the labour of carting, but more especially of the great risk of waste of the very essence of its fertility from exposure, we cannot commend it. Two or three weeks before Christmas we were invited to call at the homestead of a farm of some 700 acres in extent, to see the fat beasts which had been prepared with infinite care for the local Christmas show and sale. Gladly did we do so, and we were much interested in our inspection of yard after yard of prime young beasts in superlative condition, for we do enjoy the sight of a "bit of good farming," still more do we enjoy a discussion with intelligent practitioners, such as we found in the tenants of that farm. Well, we subsequently attended the sale, and, to our regret, saw the

beasts of our friend with from 200 to 300 others sold at an average of £25 apiece. Such a price for highly fattened Christmas beasts points to an absolute loss over and above any value real or fanciful which may be put upon the manure. Nor were we surprised on the following market day to see prime sirloins of beef offered for sale at 7½d per lb. By all means let us have dairy farming in conjunction with pig-keeping at the homestead, with milk for home consumption, butter and cheese for market, calves fattened for market, too, as quickly as possible, and only enough saved for heifers to keep up our supply of cows. In this way we should obtain enough manure for our root crops, and avoid an annual loss which in the end may prove fatal.

WORK ON THE HOME FARM.

As we sit down to write this note frost and snow render grazing upon any kind of pasture impossible for the flock, and the utmost care is being taken in feeding the ewes forward in lamb. No frozen roots must they have now, or dead lambs and abortion will be the result. Plenty of sweet wholesome chaff, consisting of meadow hay, Oat and Barley straw, well mixed and slightly salted by scattering a few handfuls of salt upon the chaff as it is thrown into a heap from the machine, is given regularly in the troughs with corn. In the racks we keep a full supply of Pea straw and bay, so that the sheep have always some food by them; but we prefer to give only enough trough food at stated intervals for the sheep to clear up at once. Both in quality and quantity of food due regard is had to the condition of the sheep, and if the slightest tendency to poverty is perceptible cake must be used in addition to corn. We hold, however, that if pregnant ewes have been well managed since the last lambing season there can be no necessity for extreme measures now. We cannot obtain a good crop of lambs from ewes that were brought very low in condition last season. There must be no undue strain made upon an animal's system at any time if its progeny is to be strong and healthy. It is solely by attention to this and by careful selection that we have one flock superior to another. Apart from the fancier's point of view, and regarded solely from that of the practical farmer, it is obvious that a well-fed ewe may reasonably be expected to yield a well-nurtured lamb, just as a badly fed ewe must yield a weak lamb. Glad are we to say that both our ewe flocks are in a satisfactory condition, and although they are not quite free from the taint of foot rot, yet there are no bad cases among them now. Hoggets and crones are now coming nicely on in condition for the butcher, and we have now a certain number on sale weekly. The fat ewes find a ready and profitable sale, some sold last week ranging as high as 53s. apiece. These sheep have now been for several months in folds upon a full diet of grass, roots, and dry food, and we hope to derive benefit, not only in the crops to follow the folding, but also in a reduced chemical manure bill this year. Strong healthy crones and forward hoggets pay; crones brought very low by poor diet and being kept late with the lambs, and late hoggets do not.

THE HESSIAN FLY IN BRITAIN.

ONE of the notable events of the agricultural season of 1886 was the startling appearance of the long-dreaded Hessian fly upon British soil. With commendable diligence, Miss Ormerod, F.R.M.S., Consulting Entomologist of the Royal Agricultural Society, has drawn up a report of observations made, adding thereto sundry suggestions as to means of prevention or remedy. Accepting the present version of facts, I must own to some apprehensions that the insect may shortly turn up in some of our fields about North Kent, and the explanation is easy. Large quantities of manure from London stables, cab yards, and the like places, is brought down to Gravesend in barges to be used on the land, and it furnishes a tolerably ready medium for the transit of the fly from the Continent in what has been called its "flax seed" or pupa condition. It should be explained that for the package of goods received from abroad quantities of straw are used, and many city houses, wholesale or retail, relieve themselves of accumulations of this by selling it to stable keepers. The natural result is that such straw becomes a constituent of mixed manure sent from town to country.

It is exactly a century since this pest was first noticed in America, and not till 1834 was it proved to occur in Europe. On the Continent the chief localities for the insect are the south of France, Austria, Hungary, and South Russia. A U.S. Commission lately sitting considers the true habitat to be Western Asia, near the Mediterranean. There have been many alarms about it in England. Whether previously to last summer it had occurred here Miss Ormerod doubts, but she received specimens from Barley fields near Hertford on July 27 h, and a fortnight after some were found at Romford. Later on the Hessian fly turned up in several Scotch counties, while Hitchin and Luton were added to the southern localities. As yet, however, the attacks have been in no place sufficiently violent to cause more than trifling damage, and on the Continent the yearly loss through this fly is small compared with the considerable one that appears almost every season in the corn returns of the United States.

The following is quoted from Kältenbach as a good epitome of the insect's life history—"The Hessian fly, or *Cecidomyia destructor*, resides as larva in the haulm of Wheat, Rye, and Barley. The females usually lay their eggs on the young leaves twice in the year (in May and September), out of which eggs the larvæ hatch in fourteen days. These work them-

selves in between the leaf sheath and the stem, and fix themselves near the three lowest joints, often near the root, and suck the juices of the stem, so that afterwards the ear, which only produces small or few grains, falls down at a sharp angle. Six or eight maggots may be found together, which turn to pupæ in spring, or about the end of July." A variation as to this is noticeable in different countries, and it appears that the pupa, or "flax seed," may exist from October to spring within the stalks.

From this it is suggested that thorough clearing of stubble during the autumn is important as a preventive measure. Others advise the sowing of narrow strips of Wheat at that season to attract the flies that are about, when eggs and maggots can be subsequently ploughed in. Straw is, of course, too valuable to burn, but Mr. J. Marten advises forming it after threshing into very firm compact stacks; a great proportion of the flies must be then destroyed because they cannot reach the outside of the stack. Late-sown Wheat has been found in the United States to escape comparatively, because ere it attains any size the flies that would have attacked it are dead.

I should add that, although I am not at liberty to mention names, there are entomologists who profess themselves convinced that *C. destructor* has not been taken here as stated. The species of *Cecidomyia* are well known to present difficulties of identification, and we have several native species whose history has not been worked out. One at least has been detected feeding within the stalks of Gramineous plants both wild and cultivated.—ENTOMOLOGIST.

FOWLS LAYING IN DECEMBER.

THE writer of "A Well Stocked Homestead" asks "Can it be proved that the owner of 100 hens or pullets gets ten eggs per day in December?" In December, 1881, I had 392 eggs from rather less than fifty hens and pullets—cross Crève and Langshan. It is fair to say that this month was mild; but in the following January, when the weather was sharp, I had 481 eggs from the same stock. In December, 1882, I had 457 eggs from a cross of Crève and Black Hamburgs; but again the month was comparatively mild. In subsequent years I have not been so successful, but still from the same number of hens and pullets I have never till this year taken less than five eggs a day in December, with crossed Dorking and Game, and some of the old stock.

But this year I have made a bad shot with Andalusians, the hens not laying and the pullets only beginning late in December, and then very sparsely—so that I have but 100 eggs chiefly from old Crève hens, which I find good layers. The fowls in each case were fed with house scraps mixed with middlings in the morning hot, and mixed grain in the afternoon. A grass run of course. These facts may interest the writer of your article.—VETERAN.

OUR LETTER BOX.

Drainage of a Meadow on Clay (Perplexed).—Have no hesitation in draining at once, making the drains 25 to 30 feet apart, and only 22 inches deep. Use the ordinary round 2-inch land drain pipes, and see that they are well laid with a regular incline throughout. Annual dressings of coal and wood ashes, and occasional dressings of lime, would gradually render the soil porous and less retentive of moisture, and when this has taken place we would introduce a few deeper drains to prevent the ascent of water from the subsoil by capillary attraction. Have no fear that the drains will do harm by making the soil too dry in summer as you suggest. It was proved long ago that well-drained land suffers less from drought than that which has no drains. We hope shortly to take up this important subject once more, for it is not at all well understood by farmers generally, and yet nothing so materially affects their work upon the land. The chemical manures may be mixed advantageously a fortnight before using.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain
	Baromet- er at 32 ¹ / ₂ and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
		Dry.	Wet.			Max.	Min.	In sun.	On grass	
1886. December. 1887. January.	Inches.	deg.	deg.	S.E.	deg.	deg.	deg.	deg.	deg.	In.
Sunday 26	29.888	36.9	36.7	N.W.	35.9	39.8	29.3	40.4	22.3	1.820
Monday 27	29.639	34.0	33.6	N.W.	35.8	37.6	31.8	58.2	31.4	0.079
Tuesday 28	29.833	37.8	37.0	S.W.	35.5	41.0	31.8	54.1	27.1	—
Wednesday 29	29.880	37.9	35.8	N.W.	35.7	42.0	33.3	63.4	28.8	0.010
Thursday 30	30.306	31.2	31.0	N.	35.9	36.7	28.1	52.6	23.4	—
Friday 31	30.571	30.7	29.9	N.	35.7	36.1	28.4	50.8	24.4	—
Saturday 1	30.441	19.8	19.6	S.	35.2	27.9	18.2	26.5	14.6	—
	30.085	32.6	31.9		35.7	37.5	28.7	49.4	24.6	1.909

REMARKS.

26th.—Dull early, rain from 9 A.M., turning to snow about 6 P.M., and falling heavily to midnight, with gale.
27th.—Very heavy snow in early morning, glorious day, almost cloudless till late evening—8 inches of snow on ground.
28th.—Slight fog early, bright day, fine solar halo at noon.
29th.—Bright and warm generally, slight shower at noon, and again in evening.
30th.—Bright and fine.
31st.—Lovely winter's day.
1st.—Very cold morning, fine and bright; fog from about 2 to 6 P.M., but not dense here; clear starlight night.

The special feature of the week was the unusually heavy fall of dense wet snow on the night 26th-27th. The snow was nearly twice as dense as usual, for whereas usually it takes 12 inches of snow to yield 1 inch of rain, about 5½ inches of this snow yielded 1 inch of water. The total yield 18½ inches is most unusual in London, except from thunderstorms.—G. J. SYMONS.



COMING EVENTS

13	TH	Royal Society at 4.30 P.M.
14	F	Quekett Club at 8 P.M.
15	S	
16	SUN	2ND SUNDAY AFTER EPIPHANY.
17	M	
18	TU	
19	W	Society of Arts at 8 P.M.

THE ROYAL JUBILEE.

AMIDST all the conflicts of the period, political and industrial, it is pleasant to observe the deep-rooted loyalty of the community to the Throne and Constitution; and in no section of that community is this spirit more clearly manifested than in the domain of horticulture. Those who delight in the occupation of gardening, and who are in sympathy with the cultivation of the plants, flowers, and fruits of the earth, recognise the importance of national stability; and they are convinced that in no other way can this be so safely assured as under our present system of government—a monarchy resting firmly on the affections of the inhabitants under its sway. A popular sovereign is the greatest factor in a nation's strength. The intensity of the reverence that exists in the minds of all sections of horticulturists for the Queen of these realms is sufficiently exemplified by the heartiness with which the "usual loyal toasts" are received in assemblies of gardeners; while the existence of a desire on the part of committees of floricultural and cognate societies to "do something" in commemoration of the Jubilee year of Her Majesty's reign is abundantly manifest. Suggestions have been made to this end in our columns, and intimations of action announced. It is very gratifying to perceive this spontaneity of sentiment, indicating as it does the undercurrent of feeling that obtains throughout the land. This feeling will find expression in various ways, so various, possibly, and subdivided, as to obscure its aggregate force. An event so historically great as a sovereign's jubilee, and so rare as to occur only at intervals of centuries, demands for its fitting celebration wide unity of action, as then only can results be achieved in any way commensurate with its magnitude and importance.

There are no doubt many horticultural societies, the directors of which will consider the question of devising means for an official expression of sentiment towards the Queen on the auspicious event that will overshadow all others of the year. There are gardeners' organisations which will be imbued with the same feeling, and a desire to express it; there is the great commercial body of horticulturists—nurserymen, seedsmen, and florists, who would rejoice in the opportunity of displaying their devotion to the Crown in an adequate manner; and there are thousands of individuals engaged in or closely identified with gardening pursuits, men of wealth and men of work, who would not hesitate to join in a great effort to represent in a worthy manner the loyalty of the ancient craft to which they belong, or in which they are deeply interested. Now if any well defined yet far-reaching scheme could be organised for embodying the scattered

items of loyalty of all who may desire to be included in the great guild of gardeners, horticulture would be seen in fuller strength than it has ever yet been displayed, its magnitude would be recognised, its character elevated, its wholesome influence appreciated, and its resources developed. A national offering of horticulturists and gardeners of all grades, at a great epoch in the nation's life, towards a national object at once useful and commemorative, can, we think, scarcely fail to commend itself to the vast majority of our readers as worthy of consideration at the present time.

But admitting the desirability of the great undertaking suggested, who shall be its organisers and what form will best display the combined sentiments of the horticulturists of the United Kingdom? Is there any one object on which their attention and that of their allies can be concentrated, and at the same time command their sympathies? To secure those desiderata it must be permanent, and immediately and continuously useful.

We live in utilitarian days, when something more than pictures and parchments, gilded pinnacles and Cleopatra's Needles are expected for outlay. Homes and hospitals, churches and colleges, schools and institutes are the favoured commemorative offerings now. If a great public want can be demonstrated at an opportune moment a disposition is usually created to supply the necessity. There is a great want now in the world of British horticulture. We have a Royal Horticultural Society, an old chartered institution, the head of all kindred societies in this kingdom; yet, though a Royal Society, it is sad to have to record the fact that it is positively without a home, while its habitation is of uncertain tenure. Is there any greater want of a public nature connected with horticulture than the one alluded to? If there be not, then is not the present year singularly favourable for a strong effort being made for supplying what is so urgently needed for placing the Society on a firm basis? If a new era of usefulness can be inaugurated for it, and at the same time this be commemorative of a remarkable event, all who share in the twin accomplishment will have reason to be proud of the work in which they engage. A jubilee house—a home for horticulture—would form a substantial and lasting memorial of the esteem of an important section of the community towards the Queen; and it is not easy to conceive of any embodiment of that esteem which could be more agreeable to Her Majesty than the erection of a building destined for such a good purpose. It would probably be advisable that the building should be invested in trustees for the use and benefit of the Royal Horticultural Society and for other horticultural objects that may from time to time arise.

The object being suggested that it is so desirable to support, it follows that the organisation requisite for its accomplishment should rest with the Council of the Royal Horticultural Society. It is for them to consider the whole question, and if they should feel that an opportunity offers such as never occurred before, and certainly cannot occur again in the present century, for carrying out a great and good work, they will be able to devise means for reaching every individual in the kingdom who may be disposed to join in the undertaking. It would be desirable to have a strong central committee associated with the Council, and it would not be difficult to have local committees formed in all populous districts to co-operate in a national horticultural Jubilee tribute of the nature indicated, and there must be thousands who would readily contribute accord-

ing to circumstances to a general fund for that purpose. With the view to stimulating local effort and recognising effective aid, some inducement of a complimentary character might be desirable, the precise nature of which could be easily determined. The circumstances being special and exceptional, the occasion would be favourable for instituting privileges of a nature that would be appreciated by those who should entitle themselves to become recipients. The great point should be to enlist the sympathies and active association of the greatest possible number of persons all over the land, then the object in view might be attained without anyone being appreciably the poorer.

When it is remembered that sums ranging from £500 to upwards of £1000 have been from time to time collected as testimonials or memorial tributes to individuals who have merited such recognition, and when it is further borne in mind that there was no difficulty in providing a fund of £10,000, nearly £6000 being actually paid in contributions, for the International Horticultural Exhibition of 1866, it would surely be possible to raise a national horticultural Jubilee fund of twice the amount, and for a purpose far exceeding that of a six-days flower show.

The Royal Horticultural Society being now relieved from heavy responsibilities, only needs a home of its own affording the requisite conveniences for the transaction of business, including the holding of periodical meetings, and occasional special exhibitions for scientific or educational purposes, the accommodation of the Lindley library, the formation of a horticultural museum, and for such other purposes that may be required for the fulfilment of the object for which it was established; and it would then commence a new career and do more than it has yet accomplished for practical, scientific, and commercial horticulture.

As slight evidence of hopefulness in submitting these necessarily crude ideas and vague outline of a project for a year that will be memorable, we had the prompt offer of £50 from the only gentleman with whom it was discussed, and he at the same time expressed his conviction that there were "plenty more" who would contribute similar or greater amounts for a cause so good as a professional tribute of devotion to the Queen and to horticulture.

RAISING GLADIOLI FROM SEED.

(Continued from page 6.)

As a rule, when matured corms are planted they produce their blooms nearly all at one time, or if kept back and planted in succession the late planted corms produce weak spikes, but seedlings well treated will begin to flower in the end of July and keep flowering in succession until cut down by frost. Our matured corms flower and ripen their seed long before the two-year-old roots have done flowering; by two-year-old corms I mean the second year from seed. When a stock is once worked up it will not be necessary to devote so much time to the seedlings, so that they will take longer to mature, as they grow in proportion to the amount of care and attention bestowed on them. The strong growers of course make corms most freely, while the weak ones form slowly; consequently, when lifting in October some seedlings will be as large as matured Walnuts, or even larger, whilst others will be like small shots. Do not despise the small ones, as these too frequently turn out the best varieties, so be careful of them; while the gross corms too frequently turn out coarse varieties. Last year I sent a man to lift our bed of seedlings, charging him to be careful and get all the corms, adding, "I will be there in a few minutes," and so I was, to find that he had gone nearly all over the bed picking up a few of the largest, and all the rest was well mixed through the border with the fork. To pick them out was hopeless, so to make the best of it we covered the bed with a good thickness of leaves with a little dung over them to prevent their being blown about. We removed this covering last April, and found the corms had already com-

menced growth. The ground was covered with them, as though they had been sown broadcast. We treated them like the rest and had good blooms from them, the only drawback being that we had to handweed them instead of hoeing. Owing to this occurrence this question has presented itself to me: Is it wise to lift seedling Gladioli the first year? This autumn I decided I would not lift the seedlings, but have covered them with leaves and dung as last year, and if they come satisfactorily next year, I shall in future abandon the idea of lifting the first year's seedlings, except those I give extra special care to as detailed when I commenced growing seedlings.

When growing Gladioli for exhibition purposes they should be planted in the richest soil available, and be well supplied with liquid manure in the growing season. Keep the plants at all times well protected from the wind by a stout stake, and when the plant commences to flower get two boards fully 2 feet long and 7 or 8 inches wide; nail these securely at right angles on the top of the stake, nail a thin shred of wood along the bottom inside and also

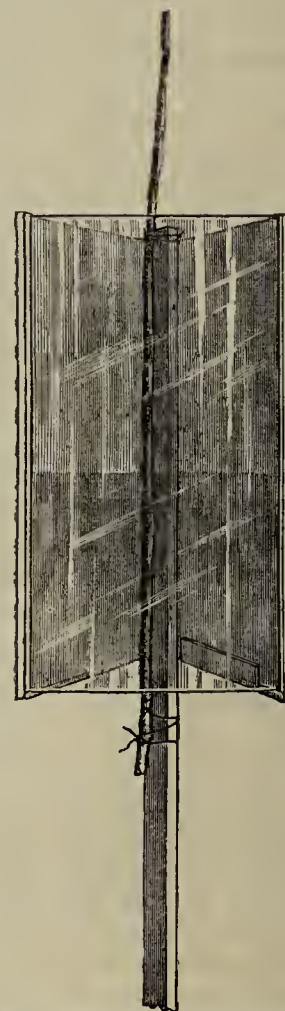


Fig. 4.—Shade for Gladiolus Flowers.

along the inside of the boards lengthways so as to form a rough groove and a stop at the bottom for a pane of glass (fig. 4). Then get a pane of glass to slide down and fit in the groove, let the stake be securely fixed in the ground, tie the spike so that it will lie steady between the boards to face the sun, and slide in the glass. The advantage of this is, the action of the sun through the glass elongates the spike and shields it from the wind. As the flowers open whitewash the portion of glass immediately opposite the expanding flowers. This will prevent the sun destroying their bright colours and cause them to be longer in opening. If this is followed daily with care, long spikes of flowers will be obtained before the lower blooms begin decaying, a point of the greatest importance on the exhibition stand. I give this hint for the benefit of those who may feel disposed to grow them for exhibition purposes. My principal object has been to bring before your readers a simple and easy method of securing a good stock of Gladioli for general purposes, but before quitting the subject allow me to add, the Gladiolus is well worthy of far more extended cultivation than it receives. Its easy cultivation, variety, brightness of colour, and general usefulness should commend it to all lovers of flowers, and if the above details are properly carried out no cultivator need be long in securing an abundant stock.—J. OLLERHEAD, *The Gardens, Wimbledon House, S.W.*

P.S.—I should have stated that the spike before being tied to

the protector should be tied to a thin stick, and the stick be tied above and below the protector boards. There is also this advantage with a protector, the sun and light draw the blooms to the front of the spike, a matter of no small importance on the exhibition stand.—J. O.

VICTORIA REGIA IN THE OPEN AIR.

WE have read Mr. Thomas's very interesting letter in your issue of the 6th inst. respecting the *Victoria regia* at Chatsworth. He is quite right in supposing that it can be grown in heated tanks out of doors. It was so grown, and we believe for the first time in England, in the year 1851, by Mr. John Weeks, the founder of our firm. At that time he had an experimental nursery in the King's Road, Chelsea, the same now occupied by Mr. Bull, and in an outside tank at that establishment he flowered the *Victoria regia*. Some of the flowers, of which there were upwards of fifty, were exhibited at the Great Exhibition of 1851, and again at the Royal Horticultural Society, and Mr. Weeks obtained a silver Banksian medal as stated in the *Journal of Horticulture* of October 23rd, 1851. It was generally considered to be a great achievement, and the late Prince Consort honoured the place with a visit of inspection. The tank, which was about 20 feet in diameter, is not now in existence having been recently removed to make room for Mr. Bull's new Orchid houses. The water in it was warmed by a series of hot-water pipes. It was just about this time that Mr. J. Weeks introduced his celebrated "One Boiler System," and in order to illustrate the feasibility and advisability of the arrangement, the pipes warming the tank were not provided with a separate boiler, but were merely attached to the existing system of pipes warming the hothouses.—J. WEEKS & Co., King's Road, Chelsea.

GROS COLMAN GRAPE.

It is somewhat difficult to understand the remarks of your correspondent, "D. B.," upon fig. 84 of your *Journal* for December 23rd, when he says he has had so many opportunities of measuring berries of Gros Colman equally fine. It is to be regretted he has neglected to put them in the scales and satisfied himself as to the correctness of your report. I did not at first notice so closely that they were so far above the ordinary production until I began to receive many letters (about thirty) some from strangers, all praising them highly.

I have not entered my Grapes against those of Mr. Thomson that I am aware of, and as that gentleman has retired from exhibiting, I suppose I never shall, so much the better for me. I am told by quite a disinterested person that Mr. Thomson had some fine berried Gros Colman at Kingston, but they bore no comparison to those we exhibited at the Royal Aquarium, Westminster. The foreman here tells me the nearest approach to our Gros Colman he had seen the whole season was shown at York, the exhibitor's name he does not know.

There are tons of Grapes grown for market in the neighbourhood of Derby, and fine ones, too; one grower alone has three span houses, each about 100 yards long, full of Gros Colman—a fine sight, but I find none to approach the size of ours. We have a formidable rival with Gros Colman in Mr. Elphinstone, who has taken more first prizes for this Grape than any other grower. An odd rod or two of Gros Colman, as is generally seen in gentlemen's gardens (let them be ever so fine) is but an insignificant sight compared to a large house of ordinary Gros Colman as grown for market; but when they reach the high standard of those I saw at Chiswick a few years ago they are a sight not easily forgotten.—J. H. GOODACRE, *Elcaston*.

BEING a little curious to-day, at random I cut a berry of Gros Colman, which measured fully 4 inches round, and weighed half an ounce only. I have not yet gone into this matter fully, but intend to. I have larger individual berries, but not to be compared with the berry figured in the *Journal* recently. I intend weighing not only a few bunches, but also counting the berries. My largest bunch in the room is 3½ lbs.—STEPHEN CASTLE.

ROSES THE BRIDE AND GRAND MOGUL.

I AM delighted to have it, on Mr. William Paul's authority, that Grand Mogul is a seedling, and not a sport from A. K. Williams. From what report it got recorded as the latter in my new Rose note-book, wherein I record the novelties that I either see or hear about during the season, I do not recall; but for reasons both general and personal I am glad to find it was a mistake. Beyond this, what is meant by my "endeavouring to damn (Oh, Mr. Paul!) these two Roses with faint praise" I am at a loss to conceive; but I suppose parental affection can never be reckoned with.

Mr. Paul's whole letter on page 16 is so quaintly contradictory that for the sake of the two Roses in question, for both of which I have already expressed my admiration, it will be better to say nothing further, especially as it is evident from his last paragraph that Mr. William Paul has undertaken the rôle of *moqueur*, and is therefore privileged to take his sport in wrapping his bit of grain in a bundle of chaff.—T. W. GIRDLESTONE.



TRICHOCENTRUM ALBO-PURPUREUM.

FEW species of *Trichocentrum* are known, and these are natives of South America, chiefly in Brazil, where they are found as epiphytes, several possessing but little beauty to recommend them to collectors. There are, however, two that may be grown with advantage, one being *T. tigrinum*, the red-spotted leaves of which have been aptly compared to those of a miniature *Oncidium Lanceanum*, and the other *T. albo-purpureum*, represented in the illustration (fig. 5). The latter is a very desirable plant, as it is easily grown, and flowers freely, the distinct colouring of the flowers rendering it notable in a collection. It is of dwarf habit, the leaves varying from 3 to 6 inches long and about



Fig. 5.—*Trichocentrum albo-purpureum*

1 inch broad, with short ovoid pseudo-bulbs. The flowers are produced singly on short peduncles, the sepals and petals of equal size, brownish on the inner surface and greenish on the outward side; the lip is large compared with the other portion of the flower, and very conspicuous, the centre and greater part white, with a bold blotch of purplish crimson on each side. It can be grown on blocks, in baskets, or shallow pots, and the temperature at the cool end of the intermediate house, or the warmest part of the house. *T. albo-purpureum* was found by Linden near the Rio Negro in North Brazil.

A SUPPOSED USEFUL ORCHID FUNGUS.

It is not customary to regard the various fungi which attack plants as cultivators' assistants, and in too many cases we have painful evidence that these minute parasitic forms of vegetation are amongst the worst of our enemies. A continental observer has, however, recently been investigating the nature of some fungi found on the roots of Orchids, and has discovered that not only are the plants uninjured by their presence, but it is supposed that they actually assist the Orchid in assimilating the food supplies. It is said that "the fungus appears in the outer cells of

the root tissue in the form of yellow bladder-like balls (of the nature of haustoria or sucker) surrounded by numerous filaments," and that these "transform the humus matters into such as are more easily utilised by the Orchid, thus doing it a physiological service." It may interest some fungological readers to know that the fungi specially observed are included in the genus *Nectria*, but it is probable that Orchid growers will be quite willing to dispense with the supposed services of those very unreliable allies.

CYPRIPEDIUM SCHOMBURGKIANUM.

At Mr. J. C. Stevens' rooms, Covent Garden, last Thursday, one of the principal attractions among the Orchids offered for sale was a newly introduced *Cypripedium* under the above name. It has been known to botanists for more than forty years, as it was discovered by Dr. R. Schomburgk near the Roraima Mountain in Central South America in 1842. It seems that in 1884 Mr. Im. Thurn rediscovered it in another locality, though attempts to introduce plants proved unsuccessful. Since then another collector found it in the locality where it was first observed by Dr. Schomburgk, and a considerable number of plants were imported in good condition. As far as the foliage and growth are concerned it closely resembles *Cypripedium Pearcei* (or *Selenipedium caricinum*) which has dark green narrow Sedge-like leaves very distinct from most other *Cypripediums*, even those of the same section. The flower spike is described as resembling *C. Schlumi*, and "the flowers are about 2½ inches in diameter. They are of deep brown colour, the dorsal sepals lighter and veined, pouch reddish." It is also said to be fragrant. Many of the plants realised from 20s. to 25s. each.

ONCIDIUM MONACHICUM.

This can only be regarded as a curiosity, but it is worth a place in a general collection, as all such add to the interest of the Orchid houses. It is a relative of *O. metallicum* and *O. serratum*, being very suggestive of the latter in its habit of flowering; the flowers themselves are, however, very singular. They are brownish in colour and slightly edged with yellow. The dorsal sepal is large, arched and undulated at the margin, the two petals being curved inwards, giving somewhat the appearance of a hood; the lateral sepals are curved outwards and strangely stalked, the lip being small. It has never been very plentiful in cultivation, but a considerable addition to the number of plants was made recently at Protheroe & Morris's Rooms, where a large consignment was disposed of by auction last Friday.—L. CASTLE.

ORCHIDS AT WOODHATCH LODGE, REIGATE.

The following Orchids were in flower on New Year's Day in the admirable collection formed by T. B. Haywood, Esq. :—

<i>Ærides</i> <i>Leeanum</i>	<i>Masdevallia ignea</i>
<i>Calanthe vestita oculata</i>	" <i>superba</i>
" <i>rosea</i> } 50 plants	" <i>Schlumi</i> , grand var. with
" <i>Veitchi</i>	6 flowers to a spike
<i>Cattleya Holfordii</i>	" <i>tovarensis</i> , 20 plants in
" <i>maxima</i>	48's, many of them carrying
" <i>Warszewiczii delicata</i>	150 flowers
<i>Cypripedium barbatum nigrum</i>	" <i>Veitchi</i>
" <i>callosum</i>	" <i>grandiflora</i>
" <i>calurum</i>	<i>Odontoglossum Alexandrae</i> , about
" <i>concolor</i>	100 spikes
" <i>insigne</i>	" <i>cirrhosum</i>
" <i>Leeanum superbum</i>	" <i>constrictum</i>
" <i>longifolium</i>	" <i>Lindleyanum</i>
" <i>Lowi</i>	" <i>odoratum</i>
" <i>Roezli</i>	" <i>Pescatorei</i>
" <i>Sedeni</i>	" <i>Rossii majus</i>
" <i>Spicerianum</i>	" <i>rubescens</i>
<i>Dendrobium bigibbum</i>	" <i>sceptrum</i>
" <i>cœrulescens</i>	" <i>tripudians</i>
" <i>Dearei</i>	<i>Oncidium cucullatum macrochilum</i>
<i>Laelia albida</i>	" <i>ornithorynchum</i>
" <i>bella</i>	" <i>Rogersi</i>
" <i>autumnalis atro-purpurea</i>	" <i>unguiculatum</i>
<i>Lycaste Skinneri</i>	<i>Phalaenopsis Schilleriana</i>
" <i>alba</i>	<i>Pescatorea Lehmanni</i> , 2 varieties
<i>Masdevallia Chelsoni</i>	<i>Saccolabium Boxalli</i>
" <i>chimara</i>	" <i>giganteum</i>
" <i>coccinea</i>	" <i>magnificum</i>
" <i>infracta</i>	" <i>violaceum</i>

BLACK HAMBURGH GRAPES IN FEBRUARY.

YOUR esteemed correspondent, Mr. Taylor, in his well-timed remarks in your issue of the 23rd of December on "Appearance versus Flavour" touches a question which to me is of much interest and importance; and I venture to say to many other gardeners who have to supply their employers with Black Hamburgh Grapes to the exclusion of all other black Grapes as long as it is possible to have this Grape in anything like presentable condition. Christmas, according to my experience, is the latest time one may expect to see Black Hamburgh in fair condition, and a statement coming from a grower of Mr. Taylor's standing that it is possible to have it in good condition up to the beginning of February will come upon many as a surprise.

Mr. Taylor will be conferring a boon upon many by detailing the treatment necessary to secure this, and as well as upon—*DRUID*.

P.S.—Could you not, Mr. Editor, prevail on the Committee of the R.H.S. to offer prizes for this Grape—say at their first meeting in February, 1888?

NEW PLANTS OF 1886.

ABBREVIATIONS.—*B. H.*, Belgique Horticole.—*B. M.*, Botanical Magazine. *Cat. C. C. d'H.*, Catalogue of the Compagnie Continentale d'Horticulture.—*G. C.*, Gardeners' Chronicle.—*Gfl.*, Gartenflora.—*Ill. H.*, L'Illustration Horticole.—*L.*, Lindenia.—*R.*, Reichenbachia.—*R. H.*, Revue Horticole.—*W. O. A.*, Warner & Williams' Orchid Album. *Inf.*, Inflorescence.—*L.*, Leaves.—*Fl.*, Flowers.—*Fr.*, Fruit.—*H.*, Hardy.—*H. H.*, Half hardy.—*G.*, Greenhouse.—*S.*, Stove.—*Per.*, Perennial.—*Shr.*, Shrub.—*In.*, Inches.—*Lin.*, Line = One-twelfth of an inch.—*Ft.*, Foot or Feet.—*Diam.*, Diameter.—*Pet.*, Petals.—*Sep.*, Sepals. N.B.—Unless specified, all Orchids may be considered to be stove epiphytes.

ACER COLCHICUM, var. *TRICOLOR*. (*R. H.* 1886, p. 371.) Sapindaceæ. H. tree. An exceedingly ornamental form, with handsomely variegated foliage. The young l. are of a bright violaceous red, shot with rose pink, shading off here and there in an irregular manner into all shades of dark red or crimson to creamy white. Garden variety.

ACER DASYCARPUM and *A. PSEUDO-PLATANUS*. (*R. H.* 1886, p. 398.) Some ornamental garden forms of these are described at the above place.

ACER PLATANOIDES, var. *COMPACTUM*. (*Gfl.* 1886, p. 117.) H. tree. An ornamental variety, producing a round compact head, something like the Ball *Acacia*. Garden variety.

ACONITUM DISSECTUM. (*Gfl.* 1886, p. 223, f. 16.) Ranunculaceæ. H. per. much in the way of *A. Napellus*, but more hairy, and differing principally in the narrower helmet of the fl. Himalayas.

ADIANTUM BIRKENHEADII. (*G. C.* xxv., p. 648.) Filices. A fine Fern of tufted habit, with tripinnate fronds about 2½ ft. long and 1 ft. broad, deltoid acuminate; pinnae alternate, distant, and long-stalked towards the base, closer together and sessile near the apex, the lower ones bipinnate, the upper ones pinnate; pinnules obtusely oblong-trapezoid, cut on the upper edge into shallow lobes. Garden seedling.

ADIANTUM CAPILLUS-VENERIS, var. *GRANDE*. (*G. C.* xxvi., p. 103.) H. A very handsome variety, of larger size, denser, and more bushy in habit than the type. Garden variety.

ADIANTUM COLLISII. (*G. C.* xxv., p. 681.) A good decorative Fern, of bushy habit, with very broad, decomposed, spreading fronds, the ultimate pinnules finely stalked, very varied in size and form, ranging from a quarter to half an inch long and broad; stipes glossy black. Garden seedling.

ADIANTUM ELEGANS. (*G. C.* xxv., p. 200; *Williams' Cat.* p. 22.) G. evergreen Maidenhair Fern of graceful habit, with triangular ovate quadri-pinnate fronds. The long-stalked distant pinnae are ovate or deltoid, with stalked pinnules; pinnulets very small, 2 to 3-lobed, roundish, the larger ones slightly trapezoid, the terminal ones shortly cuneate. Stipes blackish purple. Garden seedling.

ADIANTUM MONOCHLAMYS. (*Veitch Cat.* p. 9.) G. An elegant Maidenhair Fern, with glossy dark brown stipes, and spreading ovate-deltoid tripinnate fronds, with small close set pinnules, pea green above, silvery beneath, the fertile ones with a single sorus in a notch in the upper edge. Japan.

ÆCHMEA BRASILIENSIS. (*Gfl.* t. 1202.) Bromeliaceæ. S. A fine Bromeliad, with a lax rosette of narrow, ascending, and spreading l., 2 to 3 ft. long, spiny on the margins, bright green, slightly mealy beneath. Fl. stem about 3 ft. high, bright red, as well as the bracts and calyces of the blue fl., which are disposed in a dense spike-like panicle. Brazil.

ÆRIDES BERNHARDIANUM. (*G. C.* xxiv., p. 650.) Orchideæ. A very distinct and fine species. The raceme has the appearance of *Æ. quinquevulnerum*, the l. is narrow, strap-shaped, and unequally bi-lobed, the lip has the side lobes overlapping each other, and the front lobe covering both in front. Borneo.

ÆRIDES GODEFROYANUM. (*G. C.* xxv., p. 814.) A very fine species with fl. comparable to those of *Æ. maculosum*, they are light rosy-white streaked and spotted with amethyst on the sep. and pet., and the whole disk of the lip rich amethyst. Lip triangular, with a retrorse hooked solid tooth, and a very small angular spur. Cochinchina.

AFZELLIA AFRICANA. (*Gfl.* 1886, p. 551.) Leguminosæ. S. per. An ornamental plant, with bluish-green pinnate l., and dense racemes of white fl. The seeds are about the size of a small bean of a shining blackish brown, with a coral red area around the hilum. Tropical Africa.

AGANISIA CYANEA. (*G. C.* xxv., p. 720, erroneously printed *A. cœrulea*, corrected on p. 804 to the above.) Orchideæ. A fine handsome Orchid of distinct character, with creeping stems, and large pear-shaped one-leaved bulbs. Peduncle arising from the base of the bulb, 2-3 flowered. Fl. about 2 in. in diam., sep. and pet. light blue outside, yellowish and light blue inside. Lip brown with a dull orange callus, behind which is a pouch in the stalk of the lip; the blade of the lip is transversely reniform, with wavy margins. Rio Negro.

AGANISIA TRICOLOR. (*L.* pl. 45.) A fine Orchid, much like *A. cyanea*, but the sep. are whitish on both sides, the pet. light blue, and the callus of the saddle-shaped orange-brownish lip is different in shape. Amazons.

ALBUCA CORYMBOSA. (*G. C.* xxvi., p. 38.) Liliaceæ. G. bulb, allied to *A. juncifolia*, with 6-8 terete l., a ft. or more long. Peduncle 6 in. long, with 5-6 fl. in a lax corymb, perianth 1 in. long, yellow banded with green, inner segments hooded, connivent; outer stamens without anthers. Port Elizabeth.

ALNUS JAPONICA. (*Gfl.* 1886, p. 549.) Betulaceæ. H. tree. An Alder, with elliptic or elliptic-ovate, acuminate, serrate l., acute at the base, 2 to 4 in. long, 1 to 2 in. broad. Cones ellipsoidal obtuse, ½ to ¾ in. long, 5 to 6 lines thick. Japan.

ALOCASIA AUGUSTIANA. (*Ill. H.* pl. 593; *Cat. Comp. Cont. d'Hort.*, p. 5.) Araceæ. S. foliage plant. A fine Aroid allied to *A. zebrina*. The petioles are rosy spotted and banded with brown. The blade of the l. is deeply cordate-ovate acute, bright deep green above, paler beneath. Fl. unknown. Papua.

ALOCASIA GRANDIS. (*G. C.* xxvi., p. 390.) S. per. A noble and ornamental foliage plant, with blackish petioles 3 to 8½ ft. long; large ovate-sagittate blades, 20 to 24 in. long by a ft. broad, bright green above, blackish-green beneath; and fine white spathe marked with carmine lines outside, with a short mottled green tube on peduncles about 10 in. long. East Indian Archipelago.

(To be continued.)



AT a Committee meeting of the NATIONAL AURICULA (southern section), PRIMULA, AND CARNATION AND PICOTEE SOCIETIES, held at South Kensington on Tuesday last, the Rev. H. H. D'Ombraïn was unanimously elected Chairman of Committees in place of the late Mr. Thomas Moore. Robert Hogg, Esq., LL.D., was appointed auditor in conjunction with Harry J. Veitch, Esq., F.L.S. The prizes offered by the Trustees of the Turner Memorial Fund were accepted with thanks. The suggestion that something be done to mark the jubilee year was not adopted. It was thought best to leave this matter to be dealt with by the Royal Horticultural Society, who could deal with horticulture and allied sciences as a whole. The balance in favour of the Auricula Society was stated to be £27 ls. 4d.; that against the Carnation and Picotee Society being £16 16s. 1d.

— WE are informed that the well-known nurseryman, Mr. EDMUND PHILIP DIXON of Hull, died on January 2nd at Stepney Lodge, at the age of eighty-two years. Mr. Dixon was the founder of the firm of nurserymen and seedsmen so long established in Hull, and was much respected in the district.

— JUBILEE APPOINTMENT.—At the Quarter Sessions, held in Carlisle on Wednesday last, Mr. James Watt, of the firm of Little and Ballantyne, nurserymen and seedsmen, was elevated to the magisterial bench, and took the oath as a Justice of the Peace for the City of Carlisle.

— EARLY SEED ORDERS.—“A Working Seedsman” writes, “Gentlemen's gardeners and others about to purchase seeds will confer an inestimable benefit upon their respective seedsmen by sending their orders early, especially during snowy or frosty weather, as by this means the terrific strain upon the seedsman's staff that must otherwise arise immediately the weather changes would be considerably relieved, and equal advantages would accrue to the purchaser, inasmuch as more time, and consequently, if possible, a greater amount of care, could be devoted to the proper execution of the order.”

— WITH much regret we have to record the death of Mr. JOHN F. McELROY, gardener to A. J. Lewis, Esq., Moray Lodge, Campden Hill, Kensington, which took place on Sunday last. Mr. McElroy has been chiefly known in recent years as Secretary of the United Horticultural Benevolent and Provident Society, which office he has held for eight years. He has gained the respect of all who have had any intercourse with him, and has performed the duties connected with the secretaryship gratuitously, having joined the Society when he was too advanced in age to share in its benefits. Five years ago, however, the members of the Society presented him with a watch as a testimonial of their esteem. Mr. McElroy was sixty-nine years of age at the time of his death, and had been twenty years gardener at Moray Lodge. His father was gardener to a Mr. Christy, whose son, Mr. W. Miller Christy, became a well-known botanist, and from him Mr. McElroy in his youth obtained much of the botanical knowledge he possessed. At the age of seventeen he was engaged by a market gardener at Haywards Heath as a salesman; he left there to become gardener to a Mr. Pigeon of Clapham, was subsequently gardener to Mr. Weeber of Stamford Hill, then to Mr. Renshaw of Erith, and afterwards to Mr. Lancaster of Stamford Hill, where he laid out the garden, and remained nineteen years until the death of his employer when he was engaged at Moray Lodge. Mr. McElroy was highly respected by all who knew him as a man of excellent principles and great kindness of disposition.

— THE Secretary of the Birmingham and Midland Counties Gardeners' Improvement Association has sent us a paper on PLANT FOOD, read at a meeting in Society in October last by Mr. Edmund Tonks, B.C.L., and which was so well received that the members desired permission to have it printed. The author at once undertook to defray the cost of its issue in pamphlet form for free distribution amongst the members, and 275 copies have been received by the Secretary for that purpose. They desire to record their gratitude to Mr. Tonks for his generosity. The paper is a most able production, and should be of great

service to the recipients, who have been supplied with much sound scientific knowledge in a concise form and popular manner on the important work in which they are engaged.

— MESSRS. WEBB & SONS, Wordsley, Stourbridge, offer at the Metropolitan and Provincial Horticultural Shows of 1887 a large number of special PRIZES FOR VEGETABLES, particulars of which will be found in their spring catalogue. No less than 215 prizes are provided, varying from 3 guineas to 2s. 6d., and these will be offered at eighty-two exhibitions, comprising the leading Societies throughout the country.

— WE are requested to insert the following note from “A Scot,” for eliciting information on GRAPES:—“Intending to replant a vineyard I have been looking over various lists of Grapes, and amongst others that of Mr. Rivers of Sawbridgeworth. Amongst Muscats Mr. Rivers recommends (and on looking back I see he has done so for years), one called Rytton Muscat. Somebody must have tried it, yet its name is never mentioned. Can anyone say anything about it? Mr. Rivers also recommends a white Grape, General della Marmora, and has also done for years. Is it good, and worth growing?”

— THE same correspondent also wishes us to insert his experience on the LOSS OF HEAT FROM PIPES IN MAINS, on which subject he writes:—“Having put in one boiler to do the work formerly done by two, the pipes have to travel for some distance under ground in a built drain. During the recent frost the snow and ice have been melted for 5 or 6 feet above the pipes, showing that I am losing much heat. Can any correspondent obligingly favour me with the best remedy for this?”

— THE twenty-ninth issue of Mr. Shirley Hibberd's GARDEN ORACLE (London: 4, Ave Maria Lane) for 1887 contains as a special feature a list of show Auriculas, corrected to the present time, giving names, raisers, characters, dates, and colours. The lists of plants figured; descriptions of new plants, flowers, and fruits; selections of the best of everything in aid of purchasers, and notes on new inventions, &c., are also given, together with the usual calendarial information.

— THE ANNUAL GENERAL MEETING OF THE NATIONAL CHRYSANTHEMUM SOCIETY will be held on Monday evening, January 31st, at the Old Four Swans, 83, Bishopsgate Street Within, when the chair will be taken at 7 P.M. The principal business will be to receive the report and balance sheet for 1886, to elect officers and committees for the ensuing year, and transact such other general business as may be desirable in the interest of the Society. Immediately after this meeting the preparation of the schedules for the shows of 1887 will be proceeded with. Mr. William Holmes, the Hon. Secretary, states that “very many suggestions have already been received from members respecting alterations and additions to the classes and prizes for the coming year, but the possibility of carrying out any of these proposals depends entirely upon the amount of support accorded this year to the special prize fund.”

— THE VALUABLE SERIES OF PRIZES offered by Messrs. J. Carter & Co., High Holborn, during 1886 to their customers who secured the greatest number of prizes at horticultural exhibitions have been awarded as follows:—First prize, £10 10s., for seventy-six prizes, to Mr. J. McLean, head gardener, to E. H. T. Crawford, Esq., Auchanames, West Kilbride, Ayr, N.B. Second prize, £5 5s., for sixty-nine prizes, to Mr. W. Chettleburgh, head gardener to Colonel Rous, Worstead House, Norwich. Third prize, £3 3s., for forty-five prizes, to Mr. J. Davis, head gardener to Rev. H. Arkwright, Bodenham Vicarage, Leominster. Fourth prize, £2 2s., for forty-four prizes, to Mr. T. Toggin, head gardener to Mrs. Wilson, Tapton Hall, Sheffield. Fifth prize, £1 1s., for thirty-seven prizes, to Mr. H. L. Sell, Windsor Street, Luton. This year seven prizes are offered on the same terms, consisting of £6, £4, £3, £2, £1 10s., 1s., and 10s., the three first being either in silver plate or cash. A number of prizes will also be offered at the meetings of the Royal Horticultural Society this year.

— GARDENING APPOINTMENTS.—Mr. Harry Mustow, late foreman at Bicton, Devon, has been appointed head gardener to H. Norris, Esq., Swatcliff Park, Banbury. Mr. Albert Saunders, for two and a half years foreman at East Dene, Isle of Wight, has been appointed head gardener to Col. Cornwallis West, M.P., Newlands Manor, Lymington, Hampshire. Mr. Robert Leslie, late of Munches, has been appointed gardener to Hugo Haig, Esq., of Ramornie, Ladybank, Fife. Mr. R. Laing, late of The Bank, Linlithgow, has been appointed gardener to

W. Blackwood, Esq., Gogar Mount, Corstorphine. Mr. Joseph Rutherford, late foreman to Lord Kinnaird, Plaistow Lodge, Bromley, Kent, as head gardener to H. Bicknell, Esq., Cavendish House, Clapham Common, S.W. Mr. J. Clement, twelve years gardener to the late E. G. Carew, Esq., has been appointed gardener to Mrs. Carew, Halsway Manor, Taunton, Somerset.

— THE WEATHER has been very changeable during the past week, frost and thaw alternating with occasional snow. Much damage was caused in several districts last week by the snow, and it is said that a vast amount of damage has been caused to the Plm trees in the extensive orchards of the fruit-growing country situate in the triangular area between Tring, Dunstable, and Leighton Buzzard. There are but few orchards that have not suffered severely, but the older ones especially have felt the effects of the weight of snow, as evidenced by the numbers of branches broken away. In many cases trees have been snapped asunder by the combined weight of the snow and the force of the wind. This, following upon the severe strain put upon the trees by the immense quantity of fruit of the past autumn, causes growers to have gloomy forebodings for the next fruit season. On Saturday last a remarkably heavy snowstorm visited Derbyshire, said to be the most severe that has been experienced in the past thirty-five years.

— "A. M. B." sends the following note on the weather:—"Hitherto this part, Mid-Lincoln, though visited by severe frosts, has not experienced any deep or severe snowstorm. The last two days, 4th and 5th, have brought a fall, still, fine, and deep, one of the most beautiful of snowfalls, but one it is feared which from its weight must do damage to shrubs and trees. Thaw set in late on Saturday night, then gentle rain; snow gradually going, but yet signs of more frost, so changeable is the weather."

— VEITCH MEMORIAL PRIZES.—At a meeting of the Trustees held at South Kensington on Tuesday, the 11th inst., it was decided that a prize of £5 and medal should be offered for competition at the shows of each of the following Societies:—York Gala, Liverpool, Birmingham, Leicester, Oxford, Derby, Royal Horticultural Society, May 24th (Cypripediums). Also at the National Dahlia Show, to be held in September, a prize of £2 10s., and a medal should be offered for each of the following classes:—Self show, parti-coloured show, Pompon, decorative, and single. And, further, at the National Chrysanthemum Society's Show in November a prize of £3 3s., and a medal should be offered for twenty-four incurved Chrysanthemums, distinct; a similar prize and medal for twenty-four Japanese kinds, distinct; also a prize of £2 2s. and a medal for each of the following:—Twenty-four reflexed, twenty-four large-flowered Anemone, twenty-four Japanese or hybrid Anemone flowered, and twenty-four Pompon, including Anemone flowered. The object of the Trustees in the two latter competitions is to make the exhibitions as complete as possible by inducing exhibitors to bring together specimens of all the best sections of Dahlias and Chrysanthemums in cultivation. The number of prizes offered during the year are therefore seven special prizes, five Dahlia prizes, and six Chrysanthemum prizes, or eighteen in all, each prize being accompanied by a medal. These prizes are open to competition amongst amateurs only.

— THE frontispiece of the ROSARIAN'S YEAR BOOK FOR 1887 (Bemrose & Sons) is an excellent portrait of Mr. George Prince of Oxford, which is accompanied by a sketch of his life by the Rev. H. H. D'Ombrian. A "Symposium on the Orange Fungus of Roses" (illustrated) is contributed by Messrs. W. G. Smith, D. T. Fish, J. Burrell, W. J. Grant, and the Rev. J. A. Williams. The other articles are "The Best Show Roses," by Mr. B. R. Cant; "The Rose and National Rose Society in 1886," by the Editor; "Single Roses," by Mr. T. W. Girdlestone; "Roses in New Zealand," by Mr. R. Trigg; "Eight Years' Experience of Rose Growing in the Perthshire Highlands," by Mr. A. Hill Gray; and "The Rose Weather of 1886," by Mr. E. Mawley. There is much that is interesting and useful to Rose-growers in all these chapters, but as our rosarian readers will probably have something to say on the matter, we leave it in their hands.

— THE *Langport and Somerton Herald* states that "On Tuesday evening, the 4th inst., the good feeling at this festive season was generously shown by Mr. WM. KELWAY (of the firm of KELWAY & SON, OF THE ROYAL NURSERIES, LANGPORT), in welcoming to his newly built house, 'Brooklands,' the whole of the *employés* of the firm to a supper. After a hearty meal of good old English fare, which was

highly appreciated, the usual toasts were proposed by the Chairman (Mr. Wm. Kelway), and were honoured by all heartily singing 'God Save the Queen,' and other appropriate songs. The vicar of the parish (Rev. J. Stuhhs), who with a few guests sat at the head of the table, proposed the 'Health of Messrs. Kelway & Son, and success and prosperity to the firm.' Mr. Kelway in response stated that it was thirty-six years since he commenced business in that parish, and it was well known to what extent it had attained. This had not been brought about by accident or mere good luck, but by hard work, attention, and discipline, and the help of good foremen and men. In conclusion, he expressed the hope that trade would revive and that they might all have a prosperous year."

— AN ordinary as well as the annual meeting of the ROYAL METEOROLOGICAL SOCIETY will be held at 25, Great George Street, Westminster, on Wednesday, the 19th inst. The following papers will be read at the ordinary meeting, at 7 P.M.:—"On the Identity of Cloud Forms all over the World, and on the general principles by which their indications must be read;" by the Hon. Ralph Abercromby, F.R.Met.Soc. "On the Cloud to which the name 'Roll-Cumulus' has been applied;" by the Hon. Ralph Abercromby, F.R.Met.Soc. These papers will be illustrated by pictures thrown on the screen by a lime-light lantern. The meeting will be adjourned at 8 P.M. in order that the annual general meeting of the Society may be held, when the report of the Council will be read, the election of officers and Council for the ensuing year will take place, and the President, Mr. W. Ellis, F.R.A.S., will deliver his address.

— ONE of the best displays of PRIMULA SINENSIS VARIETIES seen at South Kensington was provided by Messrs. Sutton & Sons, Reading, on Tuesday last. Several of the varieties were novelties of considerable merit, as may be judged from the fact that the Floral Committee awarded no less than six first-class certificates for them, in addition to the silver-gilt Banksian medal accorded as a recognition of the whole group. The colours have been greatly improved and intensified by continued careful selection and cross-fertilisation. Rose, crimson, purple, scarlet, and blue with pure white, are all represented, and there are various forms with streaked or spotted flowers. There is also much diversity in the foliage, some plants having the ordinary roundish leaves, others of the Fern-leaf type, and still others with crisped or curled leaves. The plants afforded the best evidence of good culture in their robust habit firm leaves, and bold fresh-looking flowers.

— TURNER MEMORIAL PRIZES.—The money subscribed twelve months ago as a memorial to the late Mr. Charles Turner of Slough amounted to £182 18s. 6d. That amount was invested in Consols, and £20 will be available for prizes every year for a period of ten years. That amount will be given in prizes next season at the following Exhibitions:—The National Auricula (Southern Section) and Primula Society, at South Kensington, on April 26th, 1887, for six show Auriculas, to be competed for by amateurs who do not employ a gardener regularly; the exhibits must contain at least one representative of each of the four classes—green, grey, white, and self-edged; four prizes, 40s., 30s., 20s., 10s. The National Carnation and Picotee Society, to be held at South Kensington on July 26th, 1887, six distinct Carnations and six distinct Picotees, to be competed for by amateurs who do not employ a gardener regularly; four prizes, 40s., 30s., 20s., 10s. The Newcastle-on-Tyne Botanical and Horticultural Societies' Exhibition, to be held in the Jubilee Grounds on August 30th and 31st; twelve distinct Roses, three prizes, 50s., 30s., 20s.; twelve ditto Dahlias, three prizes, 50s., 30s., 20s.; to be competed for by amateurs or gentlemen's gardeners.

NEWCOMBE HOUSE, CREDITON.

THE proposed testimonial to Mr. G. Lock, gardener to B. W. Cleave, Esq., Newcombe House, Crediton, was recently noticed in this Journal, and in connection with a well deserved recognition of that cultivator's skill, the following description of the gardens under his charge will be seasonable:—

There is certainly a fair number of forcing and plant houses at Newcombe House, but it is only a good average accommodation and none but a skilled and persevering gardener could do so much with them. They were not originally built specially for the production of large plants. That house in which the finest specimens, or some of the best of the country are grown, being first intended for a Peach house, but was found unsuitable by Mr. Lock after he took charge of the gardens. It is now utilised for the Crotons, and here the giants look remarkably well. The conservatory is also a fairly commodious structure, and this is kept filled with a good

variety of well-grown plants. Among these is one of the largest and best *Latania borbonica* yet exhibited, which, in spite of repeated trips, looks as fresh as ever. This apparently unwieldy specimen only takes Mr. Lock and assistant fifteen minutes to neatly "bundle up" and pack along one side of the largest van, but it must be very heavy work. Another telling plant, *Dasyllirion acrotrichum*, that requires much less room, was at one time too tall in the stem, and this has been successfully shortened. A good sized pot was split in halves, and with this a quantity of peat and sand was enclosed round the stem just below the lower leaves and kept carefully moistened. When well rooted the top was severed from the old stem and at once shifted into a larger pot, this rendering it a most serviceable exhibition plant.

The immense *Crotons*, for which Mr. Lock is noted, are very effectively grouped in a fairly large house above alluded to, every plant being given plenty of room and light without appearing unduly favoured. Most of the largest of them, including *C. Williamsi*, *Queen Victoria*, and *Princeps*, have been to six or more important shows, but not a damaged leaf is to be seen, and Mr. Cleave may well be proud of them. At the present time they are

in the summer they, early in November, are freely pruned, and then placed in heat to form fresh strong growths. They are rested or ripened in the spring, and it is these winter-formed growths that give the profusion of well coloured bloom in July and August. *Clerodendron Balfourianum* is treated in much the same manner, only they are started earlier, the young growths at the time of my visit being well up the roof of a small plant stove.

All the best varieties of *Ixoras*, including a fine specimen of the very showy *I. Duffi*, are well grown, and Mr. Lock will soon flower a fine batch of seedlings. They are the result of a cross between *Prince of Orange* and *Fraseri*, and there is evidently, judging from the foliage and habit, a good variety among them. There is also a strong pan of seedling *Antburiums* to be seen, some of which, it is to be hoped, may be improvements on existing forms. The berries are gathered fresh from the spadix, was cleared of the pulp, and at once sown on the surface, a pan of chopped sphagnum and peat. Kept close and moist the seed soon germinates, but it usually takes two or more seasons to grow them to a flowering size. Mr. Lock has a very fine form of *Antburium Andreanum*,



Fig. 6.—NEWCOMBE HOUSE, CREDITON.

kept rather "quiet," that is to say, are not subjected to high temperatures, and are kept rather dry at the roots. Early this month they will be freely shortened back and encouraged to break strongly, when they will be turned out of their pots, have about one-half of the soil removed from the balls, and be repotted into the same sized pots. The compost found to suit them well consists of three parts of good turfy loam, and one of peat, river sand and charcoal being freely added. They are kept carefully supplied with water, are syringed frequently, and given a night temperature of about 70°, with an increase of 10° to 20° by day. They are not "stewed" in any way, but are given plenty of light and air when the weather permits, in order to fit them for subsequent exposure.

At the time of our visit (early in November) the *Allamandas* were untied from their trellises and were being rested and ripened near the glass in a small stove. They will shortly be cut hard back, being started into active growth late in February, soon after which they are shaken out and repotted, using good loamy soil. The requisite numbers of young growths are trained up near the glass, and these strong well matured shoots are freely shortened back about ten weeks before the plant may be required for exhibition, the short growths resulting being easily trained and produce abundance of large fresh blooms. After the August shows are over the plants of *Bougainvillea glabra* are kept in the conservatory, where they remain gay till November. In order to have them at their best late

this being much superior to another grown under precisely the same conditions. It is the distribution of this spurious form that has led so many to speak disparagingly of the variety. Mr. Lock always excels with *Dipladenias*, but it is in a poor little house on the north side of the principal range, and glazed with rolled glass, where they are grown. The young shoots are trained up strings on the north side of the house, and probably facing the sunshine may have something to do with their free-blooming habit. A small house is devoted to *Ericas*. These are kept near the glass, and are well recovered from the effects of placing them too near the glass, in which position an unexpected and early spell of hot sunshine crippled them so seriously as to render the majority of them unfit for exhibition last summer. They were badly missed, nothing telling better than good *Heaths*, but as these, *Azaleas*, and a few other hard-wooded plants are now in a promising condition, our friend Mr. Cypher must "look out."

In addition to the show plants there are plenty of ordinary decorative plants to be seen, and all in good condition. *Gloxinias* are grown in quantity, and they always have some in flower. *Eucharis amazonica* is also abundant and healthy, and with these, and a variety of *Palms*, *Crotons*, including beautiful standards of *C. Warreni* and *C. angustifolius* and other plants, Mr. Lock contrives to arrange some of the best groups for effect to be seen in the western counties.

The Peach houses and vineries are also well attended to, Mr. Lock having shown some of the finest bunches of Madresfield Court Grape I have ever seen, besides extra good examples of Lady Downe's, and other late Grapes. Pine Apples may be said to be a speciality, and of these Mr. Lock has grown some of the largest yet recorded. Two rather small houses are devoted to their culture, and they are rarely without ripe or ripening fruit, all large in size. Great size in this case does not appear to have been attained at the expense of the quality, as it sometimes does when the fruit are swelled to an extra large size. It may be early cutting has a beneficial effect. Directly they commence colouring they are cut and suspended in the same house, this improving the colour, and Mr. Lock thinks the quality too. Queens are usually very fine and good, one of these alluded to on page 187 of this Journal weighing 7 lbs. 14 ozs. Smooth Cayenne and Charlotte Rothschild are grown for the autumn and winter supply, the heaviest of the former yet cut scaling 9 lbs. 10 ozs., and a Charlotte Rothschild weighed 8 lbs. 1 oz. Mr. Lock considers there are inferior forms of the latter, and is weeding out his stock. He also considers Black Jamaica worthless. The plants for fruiting this year are very strong. They are about 42 inches high, yet remarkably broad leaved and sturdy. The 12-inch pots in which they are fruited are crowded with roots, the compost consisting of equal parts of turfy loam and peat, with a liberal sprinkling of bonemeal and river sand evidently suiting them well.—VISITOR.

RHUBARB FORCING.

WHEN I penned the sentence that "market gardeners never use anything but a hotbed of manure for Rhubarb forcing," I was discussing the most simple and expeditious plan of appropriating fermenting materials in general use for the purpose, and not enumerating and criticising the various methods of forcing Rhubarb in structures heated by flues or hot water, such as your correspondent "W. T." refers to. I was fully aware of the existence of such forcing sheds, and have only to take a reasonable walk to see them; but as they were outside the pale of this controversy I did not allude to them, and I consider your correspondent's remarks irrelevant, and I cannot conceive how he came to take the word "anything" as referring to methods or systems instead of materials or things. The following sentence of mine perplexes your correspondent, "Lukewarm is the temperature required in Rhubarb forcing." It was written in reply to a remark made by "A Working Gardener" as to placing the Rhubarb roots on "a heating dung mass," and I fail to see that there is anything in it very profound. In the remarks that follow "W. T." has, however, unwittingly explained it. He says, "Heat no doubt ascends, and no one, I consider, would think of placing the heating material on a high shelf." The fact, that heat ascends was the very reason why I contended for placing the fermenting materials or heat under the roots, as opposed to the old plan of placing them on the top. Further on in the same sentence he remarks, "But a great heat at the roots of anything while the tops were in a much lower temperature would be detrimental." The danger of applying too much heat to the succulent roots of the Rhubarb was my reason for recommending "lukewarmth" as a safe course, and as we may reasonably conclude that this warmth will rise into the tubs, and if they are covered as they ought to be, the temperature will consequently be as high, if not higher in them, than in the material below.—W. P. R.

THE BIRMINGHAM GARDENERS' MUTUAL IMPROVEMENT SOCIETY.

THE first general meeting of this Society took place on Wednesday evening, the 5th inst., to receive the Secretary's report from the formation of the Society in February last to the present time, and for the election of officers and Committee for this year. The Society has met with very great success, and now numbers 250 members, and is in possession of a good library of standard works on horticulture and general gardening. A branch Society has also been established at Sutton Coldfield, near Birmingham, and sixty members have joined since the branch Society was formed about nine months since. The unanimous re-election of Mr. W. B. Latham, Chairman; Mr. J. Hughes, Secretary; Mr. W. Spinks, Treasurer, and Mr. J. Crook, Librarian; and a Committee of tried men on the Society, is a guarantee of its future well-doing. About £70 has been contributed towards a library fund, and a goodly portion of this amount has already been spent in the purchase of gardening books. The establishment of a good permanent library has been the aim of the energetic Secretary, Mr. Hughes, and it is to his efforts chiefly that so large a sum has been collected in so short a time.

Prizes were offered by Mr. A. Wood of Sutton Coldfield and two other members of the Society, in sums of 20s., 10s., and 5s., for the best Chrysanthemum plant to be exhibited at the general meeting, the young plants being given by Mr. Wood in March last, and to be grown by young journeymen gardeners. The variety is Belle Paule, but the growers were unaware of the name until they came into flower. Three excellent examples were staged, all grown in a natural form. The first prize was awarded to Mr. C. Phinix, with a rather tall plant, but well foliated to the pot, and with nine fine flowers. Mr. G. Mumford was second with a plant running close in quality and with the same number of blooms, and Mr. H. Dix was third with a shorter well-grown plant with twelve stems and five flowers, but they were getting stale and showed age. The three specimens were highly creditable to the young men who grew them.

Mr. Wood also offered a special prize for the best collection of dried specimens of British plants indigenous to the district, and Mr. James Bisston, gardener and groom to a gentleman in the district, exhibited 300 specimens excellently preserved and mounted, and named and collected by him last year. It was a very meritorious exhibition indeed.

Messrs. Cannell & Sons sent blooms of some new coloured Chinese Primulas, some remarkably pretty in shades of colour and others for size and substance. Cut blooms of a very pleasing new Japanese Chrysanthemum, Golden Gem, were sent by Mr. Robert Owen, and met with much approval.

ROYAL HORTICULTURAL SOCIETY.

JANUARY 11TH.

THE first meeting of the year was chiefly remarkable for the superb collection of Primulas from Messrs. Sutton & Sons, Reading, though several interesting novelties were included from trade and private growers.

FRUIT COMMITTEE.—Present: Dr. Robert Hogg in the chair, and Messrs. T. Francis Rivers, William Warren, G. Norman, Wm. Denning, F. Burnett, T. J. Saltmarsh, J. Roberts, G. T. Miles, J. Fitt, J. Willard, J. Woodbridge, Wm. Paul, A. H. Pearson, R. D. Blackmore, Harrison Weir, Arthur Sutton, T. B. Haywood, Harry J. Veitch, and Philip Crowley.

Mr. Roberts, The Gardens, Charleville Forest, Tullamore, Ireland, exhibited three bunches of the new Grape White Gros Colman, with globular berries, but not like Gros Colman, and close bunches. The Committee request to have it exhibited again. Mr. Roberts, The Gardens, Gunnersbury Park, Acton, showed two handsome Pine Apples. Mr. Norman, The Gardens, Hatfield, exhibited a basket of fine Mushrooms, for which a cultural commendation was awarded. Mr. Myles, gardener to General Hutt, C.B., Appley Towers, Ryde, Isle of Wight, showed fruits of Diospyros Kaki, resembling large yellow Tomatoes (cultural commendation). Mr. W. Horley, Toddington, and Messrs. W. Paul & Son, Waltham Cross, sent seedling Apples that were passed. Messrs. J. Wrench & Sons, London Bridge, E.C., sent some good samples of curled Borecole. The Permanent Enamel Company, Plaistow, Essex, had specimens of neat enamelled iron labels for trees and walls.

FLORAL COMMITTEE.—Present: G. F. Wilson, Esq., in the chair, and Messrs. H. Turner, A. J. Lendy, E. Hill, J. O'Brien, H. M. Pollett, G. Paul, J. Dominy, H. Ballantine, C. Filcher, C. Noble, Richard Dean, Amos Perry, B. Wynne, W. Holmes, A. Bradshaw, T. Baines, G. Duffield, H. Herbst, J. Walker, W. Goldring, G. Maw, W. H. Lowe, H. Bennett, J. Douglas, J. Fraser, and Dr. M. T. Masters.

Messrs. Sutton & Sons, Reading, had a surprise for many visitors in their magnificent groups of Primulas, which formed one of the best displays of these useful winter-flowering plants that has been seen at South Kensington. Over 400 plants were exhibited, mostly in 48-size pots, and the varieties were arranged in little groups of their respective colours, giving a very pretty appearance generally. The plants were healthy specimens, stout and vigorous, with good trusses of fine flowers most varied in colours. Some of the best varieties were the following:—Reading Blue, single, large flower, good bluish tint; Double Blue, a remarkable novelty, with semi-double flowers, tinted blue, very distinct and free. There was also Fern-leaf, double and single varieties, each with the blue tint well developed; Reading Scarlet is a free-flowering single variety of brilliant colour; Ruby King, a rich crimson single; Double Rose, a charming delicate shade and neat flowers; Pearl, single white, very faintly tinted, handsome; Rosy Queen (Fern-leaf), single, of similar colour, bold flowers and large handsome trusses; Gipsy Queen (Fern-leaf), single, white or faintly tinted, leaves very dark purplish hue, especially the petioles; Double Scarlet is rich in colour; Double Carmine, a softer shade; Moss-curved White, semi-double, Fern-leaf, beautifully crisped; Moss-curved Lilac, with very curiously curled and crisped bronzy or metallic leaves, and double pinkish flowers; and Giant White, a very large single, pure flower. A silver-gilt Banksian medal was awarded for the group, and six first-class certificates were awarded for the best varieties.

Mr. T. S. Ware, Tottenham, exhibited plants of *Helleborus niger* well flowered, also spikes of the white and fragrant *Freesia refracta* alba, the constant flowering *Primula poculiformis* and the yellow *P. floribunda*, the White Hoop Petticoat, *Naroissus monophyllus*, with *Lachenalia pendula*, the curious *Korolkowia discolor*, and the late *Chrysanthemum* Mrs. H. J. Jones, which was certificated. Messrs. H. Cannell & Sons, Swanley, showed several Primulas and a number of flowers representing their numerous fine highly coloured varieties. Queen of the Stripes, a single variety, has very large flowers curiously spotted and striped with crimson or rose on a white ground; another named Jubilee, also a single variety, has large deep crimson flowers and a yellowish centre. Mr. R. Clark, Twickenham, showed a plant of *Cyclamen Albert Victor*, a very dark red variety, certificated in 1885; he also had plants of *C. giganteum compactum* album and *Advance*, both fine forms.

F. G. Tautz, Esq., Stadley House, Goldhawk Road, Hammersmith (gardener, Mr. Cowley), sent plants of *Odontoglossum Luciniaum*, with neat white flowers, spotted with brown (vote of thanks); *Cypripedium Marshallianum*, a form apparently of the *C. concolor* type, with a yellowish lip, the dorsal sepal and petals dotted with crimson; and *Camellia Lady Dolby*, with single flowers, pale rose streaked with red. Mr. C. G. Hill sent a plant of *Odontoglossum Arnottensis*, with small yellowish flowers, spotted with chocolate. MM. Masereel Frères, Ghent, showed an *Odontoglossum* with creamy white flowers, heavily blotched with chocolate, a curious little *Restrepia* veined with gold and bronze, and *Odontoglossum crispum guttatum*, white spotted with brown. Baron Schröder, The Dell, Egham (gardener, Mr. Ballantine), contributed a choice collection of Orchid flowers, several of which were certificated. They comprised the following—*Cattleya Percivaliana* superba, very richly coloured lip; *Lælia triophthalma*, rich crimson lip; *Cypripedium microchilum* superbum, spotted and streaked in the centre with dark purple; *Lælia anceps Percivaliana*, faintly tinted with purple; *L. anceps Dawsoni*, very handsome; *L. anceps alba*, pure white, and *L. anceps Williamsi* (vote of thanks), white, veined with red in the throat of the lip. H. M. Pollett, Esq., Bickley, showed a spike of *Oncidium coronarium*,

var. *brevifolium* (vote of thanks), having rich shining brown flowers with a yellow lip.

Mr. F. R. Kinghorn, Sbeen Nursery, Richmond, was awarded a vote of thanks for plants of *Erica hyemalis alba*, which was certificated January 10th, 1882. It is similar in habit to the species, but the flowers are white. Messrs. C. Smith & Sons, Guernsey, showed flowers of a late yellow *Chrysanthemum* named Guernsey. Mr. J. James, Farnham Royal Slough, showed twenty plants of *Primulas*, representing some very handsome varieties. Votes of thanks were accorded for Kate White, a large single Fern-leaf variety; Mary James, one of the lilacina type, very large; and Advance, a deep crimson flower, very large. Mr. R. Owen, Maidenhead, contributed flowers of a late Japanese *Obrysanthemum* (certificated), named Golden Gem, with fluted, slightly recurving florets, yellow, or tinted bronze; also a white Japanese variety, named Princess Blanche. Mr. Chuck, The Gardens, Brodworth Hall, Doncaster, sent a box of Azalea flowers, representing twenty-four varieties.

At the meetings of both Committees much regret was expressed at the death of Mr. Thomas Moore, and it was stated by the Chairmen that they would be happy to receive subscriptions from any of his friends who wished to contribute to the erection of a memorial in Brompton Cemetery.

CERTIFICATED PLANTS.

Barkeria Vanneriana (W. Vanner, Esq., Camden Wood, Chislehurst).—A pretty novelty with rosy purple flowers produced at the end of a long scape; sepals lanceolate, petals more ovate, lip oval, acuminate, with a white blotch in the centre.

Lalia anceps Stella (Baron Schröder).—A beautiful variety with large flowers, the petals broad like Dawsoni, the lip veined with crimson and having a yellow ridge in the centre.

Lalia anceps Sanderiana (C. G. Hill, Esq., Arnot Hill, Arnold, Notts (gardener, Mr. Philp), and Baron Schröder).—A superb variety with broad white petals and sepals, the lip veined with red, yellow in the centre, and crimson at the tip. The plant had two spikes of four flowers each.

Pteris tremula var. *flaccida* (H. B. May).—A strong growing graceful variety, with bright green fronds and long tapering points to the pinnae.

Chrysanthemum Mrs. H. J. Jones (T. S. Ware).—A golden sport from Ethel, very free, and an excellent late variety.

Kalanchoe carnea (J. Veitch & Sons).—An introduction from South Africa, with small neat flowers, pale rose, lighter in the centre.

Korolkowia (*Fritillaria*) *discolor* (T. S. Ware).—A recent introduction from Central Asia by Dr. Regel, with glaucous Tulip-like leaves, and flowers with six yellowish lobes. It is allied to the *Fritillarias* and quite hardy.

Cypripedium Leeanum superbum (Baron Schröder).—An excellent variety of this now well-known beautiful *Cypripedium*.

Primula Double Scarlet (Sutton & Sons).—A plain leaf double variety, with handsome, large, very brightly coloured flowers. Most effective for grouping with the light varieties.

Primula Rosy Queen (Sutton & Sons).—A Fern-leaf single variety, with neat flowers of a delicate pink shade, in fine trusses.

Primula Double Rose (Sutton & Sons).—A plain leaf double variety, of a soft rosy tint, very pleasing, free and of good habit.

Primula Gipsy Queen (Sutton & Sons).—A single Fern-leaf variety with white or blush tinted flowers, but chiefly remarkable for the peculiar dark leaves and purplish, almost black petioles which, in contrast with the light flowers, had a striking appearance.

Primula Double Blue (Sutton & Sons).—Two varieties of this were certificated, one with plain leaves and the other with Fern leaves, both equally good and distinct, the flowers double, of a clear bluish tint.

SCIENTIFIC COMMITTEE.

Present: Dr. M. T. Masters in the chair; Messrs. Lynch, Lowe, Maw, Wilson, O'Brien, Church, Bennett, Pascoe, McLachlan, Michael, Smee, Smith, Ward, Morris, Hon. and Rev. Boscawen, Col. Clarke, Rev. G. Henslow, Hon. Sec.

Araucaria Leaves Attacked by Rhizococcus Araucariae.—Mr. McLachlan reported on the specimen exhibited at the last meeting, and pronounced the above to be the species. It is noticed by Maskell, a careful writer on New Zealand Coccidæ, and identified by Cronstock, an American writer, with a similar form on imported *Araucarias* in California. It appears to be specially abundant on *A. excelsa*, the Norfolk Island Pine.

Carbonised Wheat.—Dr. Masters exhibited specimens from a lake near Neuchatel, on which Mr. G. W. Smith will report.

Orchid Leaves Attacked by Coccidæ.—Hon. and Rev. Mr. Boscawen showed leaves with black cocci upon them, of which the eggs or young are devoured by a small species of ant. Mr. O'Brien said he was familiar with the coccus on *Cypripediums*. Mr. McLachlan will report upon it at the next meeting.

Chenopodiaceous Plant with Gall-like Processes.—It was referred to Mr. McLachlan for examination and report.

Pleurothallis Proliferous.—Mr. O'Brien exhibited a plant which after flowering produced a leaf bud from the base of the peduncle.

Picea grandis.—Dr. Masters exhibited a portion of a trunk broken across by the late severe gale and snowstorm, received from Mr. Noble.

Narcissus Pennsylvanicus.—Mr. G. Maw exhibited a specimen from South Portugal. It is allied to *N. papyraceus*, and was found by Mr. A. W. Tait in 1886 in the province of Algarve.

Disease in Corns.—Mr. Maw referred to the specimens brought before a previous meeting, and remarked that the affection was due to the change of starch and cellulose into dextrine; a common occurrence is the presence of animal matter.

Malope malacoides.—He also exhibited coloured plate of this plant, together with rhizome and fleshy roots, which are used in Tangiers, &c., as a "saponary."

Lecanora esculenta.—The Lichen described as *Parmelia*, and called "Manna," proves to be a species of *Lecanora*.

Figs Attacked by Ustilago ficuum.—The following communication with specimens were received from Mr. Plowright:—"Herewith I send you half a Fig which came out of a box of Figs opened for dessert on Christmas Day. It is affected with *Ustilago ficuum*, Rehd. It is alluded to in the

new edition of the 'Handbuch der Pflanzen Krankheiten,' by Dr. P. Soraner, page 209, as occurring in the interior of the fruit of *Ficus Carica*, and is closely allied to the *Ustilago Phœnicis*, Corda, which occurs in Dates. Fischer van. Walsheim, in his 'Ustilaginées,' p. 18, describes the spores *en masse* as black, but when seen separately they are blackish violet, smooth, globose, with a thick epispore, and measure from 3 to 8 mill. This accords with the specimen sent herewith. The spores, as I find them, are in vast majority of cases about 3 mill across, but scattered here and there amongst them are a few much larger ones (8 mill), but I do not find any intermediate ones. The spores of *Ustilago Phœnicis* are very similar, but as far as I know are more uniform in size (4-5 mill)."

Plants Exhibited.—Two rare species of *Salvia*—viz., *S. leonuroides* (Chili) and *S. pulchella* (?) by Mr. Lynch, from the Botanic Gardens, Cambridge; *Korolkowia discolor* (from Central Asia), this is perfectly hardy, forwarded by Mr. Ware, Tottenham.

Obituary.—Dr. Masters drew attention to the loss of two members—Marshall P. Wilder and Mr. T. Moore. It was agreed that a letter of condolence should be sent to Mr. Wilder's son.

NATIONAL CHRYSANTHEMUM SOCIETY.

WESTMINSTER AQUARIUM, JANUARY 12TH AND 13TH.

THE midwinter Exhibition was very satisfactory in all respects, the *Obrysanthemums* being much more numerous and of better quality than could have been expected. The weather has been very much against the blooms keeping well, but although specimens up to the standard of a November show could not be provided, there were many fresh and excellent blooms, proving that the *Chrysanthemum* season can be greatly prolonged.

For a general collection of blooms Mr. Robert Owen was first with fresh and varied stands, comprising Bronze Golden Gem, Virginal, Ceres, and Duchess of Albany in excellent condition. Mr. Bolas, The Gardens, Hopton Hall, Warksworth, was second with smaller blooms. Mr. J. Lowe, The Nurseries, Uxbridge, was third with eight boxes of blooms, in which *Grandiflorum* was very fresh and good. Extra prizes were awarded to Mr. Stevens of Putney and Mr. J. Walker, Thame, Oxon. With twenty-four blooms Mr. Walters, Sunnyside, Burton-on-Trent, was first, showing remarkably fresh blooms of Boule d'Or, Marguerite Marrouch, Ceres, M. Freeman, Duchess of Albany, and Mdle. Cabrol; Mr. Stevens was second, Princess Teck and Mrs. Charles Carey being the best of his varieties; and Mr. J. Hamlyn, Bletchley Park Nursery, was third with Princess Teck.

Mr. G. Stevens had the best twenty-four Japanese blooms, chiefly Ceres and Mrs. Charles Carey, and the same exhibitor was first with twelve blooms of any variety, Duchess of Albany, Jupiter, and Ceres being his best blooms. Mr. Walker and Mr. J. Searle, Crediton, were second and third. The finest twelve Japanese blooms were staged by Mr. H. Lister, gardener to Lord Brooke, Easton Lodge, Dunmow, Essex, who was first with Sceptre Toulousaine, Comtesse de Beauregard, Belle Paule, and Fanny Bouchardat, all exceedingly fresh for the time of year. Mr. G. Stevens followed, and Mr. J. Walker third, with small neat blooms. Mr. R. Owen was first with six Japanese blooms, Ceres, Baronne de Prailly, M. Freeman, and Golden Gem; Mr. H. Lister was second, and Mr. Hargreaves, Milnshaw, Accrington, third.

Mr. T. S. Ware, Tottenham, had a number of good blooms of Mrs. H. Jones. Messrs. C. Smith & Sons, Guernsey, had blooms of their yellow variety Guernsey. Mr. W. Brown, Richmond, secured first honours for a handsome bouquet of white, yellow, and bronze *Chrysanthemums*; Messrs. N. Davis and Jones, Camberwell, being second with a beautiful bouquet very tastefully arranged, and Mr. Bolas third. Mr. W. Clark of Twickenham was first with a fine collection of *Cyclamens*. Mr. P. Cornish, The Gardens, The Sbruberry, Enfield, and Mr. H. Wright, Lee, were the winners with *Solanum Capsicastrum*. A prize was awarded to Mr. E. Mizen, Mitcham, for several stands of the late yellow incurved Mrs. Norman Davis very fresh and good.

Mr. W. Holmes, Hackney, had a large and excellent group of Palms, Ericas, and miscellaneous plants. Mr. H. Wright, of Lee, also had a beautiful group of bulbs and decorative plants; and Mr. G. Stevens, a pretty group of double white *Primulas*, and Duc Van Thol Tulips. (Vote of thanks.) For a collection of *Primulas*, Mr. G. Braid, Winchmore Hill, was awarded first prize for well-grown plants, bearing large and richly coloured and pure white flowers. Messrs. Carter & Co., High Holborn, were placed second for a collection comprising a large number of excellent varieties. In the gardeners' class Mr. Low and Mr. F. Howes, Tulse Hill, were the prizetakers with well-grown plants. Mr. T. S. Ware had a collection of choice hardy flowers. Messrs. Sutton & Sons, Reading, had the wonderful group of *Primulas* which were so much admired at South Kensington on Tuesday, and which attracted equal attention here, and a silver medal was awarded for them besides several certificates.



KITCHEN GARDEN.

THE beginning of the year is a good time for considering what is best to be done to secure a full and varied supply of all the best vegetables during the next twelve months. Seeds must be bought, soil prepared, and the crops arranged to the best advantage. Some may be inclined to think that this can all be done properly as the time arrives

for planting and sowing, but this is a mistake. If a complete list of seeds is made out and the whole of the crops arranged before they are put in, the most profitable results will follow. With regard to buying seeds, it will always be found that the best can only be had at a reasonable price. Cheap seeds ought always to be avoided where the best results are desired.

EARLY POTATOES.—Quantities of frame Potatoes may now be planted. Use only the earliest sorts, and give preference to those varieties which do not produce much top-growth. All pits and frames may be filled with them. Place a good quantity of hotbed material underneath to create a gentle bottom heat; add rich soil on the top to the depth of 1 foot, and then plant the sets. They should be kept 15 inches or 18 inches apart, and be placed about 6 inches below the surface. Some may think that by planting 10 inches or 1 foot apart they will secure more tubers at digging time, but this will not be the case, as close planting only results in a scanty crop of very small tubers. We have tried early Potatoes in pots and boxes, but never found them so satisfactory as those in frames.

EARLY CARROTS.—Small Carrots in April are more acceptable on the table than almost any vegetable we could name, and they are not difficult to grow. A good hotbed is the best means of forcing them. It must be made up very solid and a good depth, as it ought to retain the heat until the end of March. As soon as the bed is formed the frame should be placed upon it, and light sandy soil be placed inside to the depth of 10 inches or more. This should be trodden down firmly. The surface must be made smooth and the seed sown thinly broadcast. Cover it with half an inch depth of sandy soil beaten down with the back of the spade. The Early French Horn is the best of all Carrots for the first crop. When the hotbed slopes from the back to the front do not place the soil in this position, as when water is required it will be found almost impossible to supply the plants at the top. We always sow on the level.

EARLY VEGETABLES FOR PLANTING OUT.—At one time Cauliflowers could only be secured very early in summer by sowing the seed in autumn and keeping the plants in frames over the winter, but now we have earlier varieties they can be sown in spring and grown to come in sooner than any of the autumn plants of the old kinds. If a little seed is sown in a shallow box now and placed in a gentle heat the plants will appear in ten days or less, and by keeping them near the glass and away from frost they will be in fine condition for planting out in March, and such plants will always be found more free in growth than the long half-starved ones which have been confined in the frames from October until March. A pinch of early Lettuce seed may also be sown, and where early Leeks are desired these may be sown. Where autumn-sown Cabbage plants have failed sow a batch in boxes to plant in March. We rear a great many young plants in this way in spring, and always find them most useful for early crops.

TOMATOES.—Where cuttings were saved and are still in the store pots turn them out of these and give them more root room. Where three or four of them are together pot them singly in 3-inch pots, and those growing singly in the latter size should be transferred into 6-inch pots. Give them rather a rich soil, keep them near the glass, and in a temperature of 60° or 65°. Tomato seed may also be sown to produce plants for the earliest batch of plants. Drain a 6-inch pot well, nearly fill it with light soil, sprinkle a little seed on the surface, cover this slightly, and place in a temperature of 65° or 70°. When the plants show the rough leaf keep them near to the light, and as soon as they can be handled place them singly into 2-inch or 3-inch pots.

PARSLEY.—There are indications that this may be short in spring, especially if the present severe weather is experienced during the next three months, and as a deficiency in April or May will be as much felt as it would be now, two or three boxes of seed should be put in. It will not germinate so quickly as the seeds already mentioned, but the plants will be ready for putting out by the end of March, and they will give a good supply in May and onwards. Give a little protection to old Parsley roots, and collect and dry the leaves which are decaying now, as they may be used in the kitchen for many purposes as a substitute for green Parsley.

GLOBE ARTICHOKE.—Some winters these require little or no protection, but that will not be the case this time, and if they are not thoroughly protected now add more litter. It should be well packed round their collars, as it is important that the crowns be not injured by frost.

FORCING.—So far open air vegetables have been plentiful, but it is during the next eight or ten weeks that the greatest difficulty will be experienced in keeping up a varied supply, but the forced produce is excellent for this. Cover more Rhubarb, give it plenty of warm manure, and let fresh air reach the young growths daily. Seakale may be forced with less air, as it is not so apt to damp as the Rhubarb. As yet our supply of this is cut from roots, lifted, and forced, but we are now covering the roots with pots and manure in their growing quarters. Much may be done with makeshift contrivances, such as old boxes, casks, &c., in forcing Rhubarb and Seakale, but these are never so satisfactory or convenient as pots made for the purpose. A fresh batch of Asparagus roots can be lifted and put in every twelve or fifteen days. Do not attempt to force roots that are not well developed. The first roots are now over, and are being cleared out to give place to another batch. The produce is said to be excellent. Kidney Beans are only growing slowly, and the batch about to form pods will not be very profitable, as the pods are not numerous at this season, but large quantities may now be sown for a supply in March, and they form a highly remunerative crop at that time.

FRUIT FORCING.

PEACHES AND NECTARINES.—*Earliest House.*—The flowers having opened well and pollen being abundant, the set appears favourable notwithstanding that the weather has been and is dull and cold. The chief aid to fertilisation is to raise the temperature in the morning to 50° if it has been lower, and to put on a little air so as to induce a circulation of air without causing a draught, and to maintain a genial condition of the atmosphere by damping the path and borders occasionally—i.e., in the morning and early in the afternoon of fine days. By ventilating early with a suitable temperature the trees are kept in steady progress, the blossom becomes perfected, and impregnation is readily effected. It is easy to assist the distribution of the pollen by means of a feather, a plume of pampas grass, a rabbit's tail mounted on a stick, or a camel's hair brush. Any varieties deficient of pollen should have it collected from those that furnish it abundantly, as Royal George in Peaches, and Elruge in Nectarines, and have it carefully applied to the stigmas of the flowers of the trees deficient of pollen. The night temperature must now be 50° to 55° in mild weather, permitting a fall of 5° through the night in severe weather, 55° by day from fire heat, advancing to 65° from sun heat. Increase the ventilation freely above 55°, but not so as to lower the temperature, and close at 65°, a few degrees advance from sun heat being beneficial. Do not be in a hurry in disbudding, but any strong shoots of the previous year having a tendency to push growth in advance of the others may be commenced with first removing the growth on the under and upper side of the shoots, and then reducing the side ones to the number required—i.e., one from as near the base as possible for to supplant that now fruiting, and another or more above or on a level with the fruit, and which should be pinched at a few inches of growth, or if the shoot be an extension leave growths at about every 15 or 18 inches to form the bearing shoots of next season, continuing those with the leader intact. Disbudding must, however, be commenced early and continued at short intervals until no more shoots are left than will be necessary for furnishing the wood of the ensuing season. See that the inside borders are duly supplied with water, and that the roots outside are well protected with litter or other dry material. After the fruits are set an occasional syringing will be useful in assisting the trees to cast the remains of the blossoms, but avoid heavy syringings, which have a tendency to weaken the trees, besides inducing an enfeebled growth in the shoots.

Second Early House.—In the house intended to afford ripe fruit in late May or early June with the older varieties, but with such as Alexander a month earlier, and with Hale's Early to follow—two of the very best early Peaches for an early house, and which has been closed as advised, employ fire heat only to maintain a day temperature of 50°, raising it early, or by 8 to 8.30 A.M., to insure the development of the blossom with light and its due aërication by an increase of ventilation above 55°, avoiding cold currents and allowing an advance of 5° to 10° from sun heat and corresponding ventilation, closing early so as to husband the sun heat. A night temperature of 40° to 45° is sufficient until the blossoms are well advanced for expansion, when it should be gradually raised to 50°. Syringe the trees until the flowers show the anthers, when damping the paths, &c., will be sufficient, and a little air should be admitted constantly, with a gentle warmth in the pipes. When the pollen becomes ripe artificial fertilisation may be resorted to. If water is wanted give thorough supply, affording liquid manure in a tepid state to weakly trees. Trees having a superabundance of flowers should have those on the under or back side of the trellis removed by drawing the hand downwards.

Succession Houses.—Keep this house as cool as possible by free ventilation, and any trees swelling their buds faster than desired should be shaded on fine days, but after the buds are advanced so that the anthers are showing there is danger, and fire heat is necessary. The house to be started early in February may now be closed, furnishing needful supplies of water, only employing fire heat to exclude frost, and not allowing the temperature to exceed 50° without full ventilation. All the trees in late succession houses must be completed pruning and dressing, the houses being thoroughly cleansed, the trees being secured to the trellis, ventilating freely and keeping them as cool as practicable. If the borders require renewing with fresh loam it may now be done, but is preferably performed just before the fall of the leaf. Remove the old soil from between the large roots, being careful not to injure the fibres, and work the soil in amongst the roots, not covering them deeper than 3 or 4 inches with fresh loam, and if of a calcareous nature all the better, treading or ramming it firmly. If necessary give a supply of water, as dryness at the roots, even when the trees are at rest, will cause the buds to fall.

PLANT HOUSES.

Dracenas.—Plants that did duty in rooms and other positions early in the winter, and have since been kept dry at their roots to harden and ripen their stems, are in a fit state for cutting up for raising young stock. The root portion of the stem is best for this purpose, but if this part proves insufficient to insure the necessary stock, the ripest portion of that above ground may be employed. The stems may be cut into lengths about an inch long, and laid in light sandy soil in pans. Place the pans in a night temperature of 65°, a temperature 5° lower will do, but the stems are longer starting into growth. It is a good plan to plunge the pans in cocoa-nut fibre refuse, where they will receive gentle bottom heat, and use no water until growth has started. When the stems are thoroughly ripened, so that every portion will produce a plant instead of decaying, they can be placed singly in small pots, and these plunged in boxes or in the fibre the same as the pans, covering the surface to prevent evaporation. Young plants in 2 and 3-inch pots may be given a small

shift if a temperature of 65° can be given, and convenience exists for plunging them in gentle bottom heat. If these conditions cannot be accorded the plants, potting had better be delayed a few weeks longer.

Anthuriums.—Those plants that completed their growth in early autumn and have since been resting in a temperature of 50° to 55°, may now be introduced into the stove where they can be kept warmer. With increased heat and moisture activity soon commences, and bright scarlet spathes are produced early in the season. While plants are resting in a moderately low temperature they should be kept on the dry side at their roots, or they will suffer instead of being improved. Plants that have been in the stove up to the present time will be benefited by a month's rest such as cooler and drier conditions afford.

Anthurium Andreanum.—This is one of the best stove plants that can be grown, for it is scarcely ever out of flower. During the winter its large scarlet spathes are most useful, for they render the stove effective long before Poinsettias can be had, and also after they are done. Where general effect is an object, several small plants are more useful than one or two large ones. The stock is readily increased by topping the plants and striking them. They strike freely enough in the propagating frame if kept close and brisk heat is maintained. Portions of the stem containing eyes, if placed singly in pots, will also produce plants, but these are best left attached to the parent plant until they have pushed into growth. From one plant in a season a number of plants will be produced, and after the old one is improved, for it is certain to produce three or four crowns near the surface of the soil. These plants do well in a compound of sphagnum moss, peat used in lumps, and rough charcoal.

Pumbagos and Linums.—These will have passed their best, and the number necessary to retain for stock should be well pruned. They should be examined, and if any trace of red spider or thrips exist upon them they should be dipped in a solution of Fir tree oil, which will destroy those insects. The plants may then be stood in a temperature of 60° until they produce shoots for cutting.

Adiantums.—Those from which all the fronds have been gathered should not be stood in a cold place, for this certainly prevents their starting freely into growth. If placed in a vinery at work, where the temperature ranges about 55° to 60°, they will quickly commence throwing up new fronds. When fairly on the move they can be repotted if they need it, by placing them in larger pots, or they may be cut into two, if necessary, to increase the stock. Plants started into growth now will yield a valuable supply of fronds in early spring, when they are generally scarce if provision is not made for starting a good batch of plants, and prepare them by light and moderately cool treatment afterwards to form a succession.

Davallias.—These are amongst the most useful of Ferns for yielding foliage for cutting, the fronds travel well, and last fresh in water for a long time. They can be successfully grown in pots and pans, but where room is limited the largest supply can be obtained from baskets about 1 foot in diameter. Small plants in about two years creep all round such baskets, and can conveniently be suspended in vineries or any plant structure without taking up the stage room required for others. Such deciduous species as *D. dissecta* are most useful for starting into growth now. This is very free growing, and the fronds are of good size, and, best of all, this is not injured by being placed in a cold vinery or Peach house during its resting season.

THE BEE-KEEPER.

MARKET FOR HONEY.

AFTER the sensible remarks made by "Felix" on the above, it would appear unnecessary for me to say anything more on the subject, and but for one or two points I would have kept silent. Beyond what he says I am entirely ignorant of the doings of the "Honey Company." In fact, I am somewhat disappointed at being kept in ignorance of facts concerning it, through Dr. George Walker, Wimbledon, failing to furnish us with the balance sheet showing the financial state and results of the Company during the month of March last, as promised previously by that gentleman. For his utterances about the great turnover of the capital in honey, which would have formed a procession of waggons fifteen miles long, containing a ton each, I forgave him, but I did not expect he would have kept the other particulars from us.

The question of a market for honey is a public one, but unless, as "Felix" says, those interested exert themselves, the thing cannot succeed. More than a year ago both schemes were noticed in this Journal—viz., the "Honey Company," and the sensible one suggested by "A Hallamshire Bee-keeper." There appeared to be no advantage taken of the helping hand by those who would have certainly been benefited by the scheme. On the contrary, the *British Bee Journal* published one or more letters disparaging the scheme, and in such a manner as to throw obloquy upon its promoter, "Hallamshire Bee-keeper," because he was the only one responsible for what would have been a valuable scheme for every bee-keeper in the kingdom had it been taken advantage of.

It does appear strange that people will cry out, "What are we to do with our honey? where shall we find a market for it?" and yet they will do nothing to attain their earnest desire, while people from foreign shores bring over large consignments, and sell their honey at the very doors of bee-keepers here who cannot get their honey sold! and probably honey of a superior quality too.

What the Canadian honey was as to quality I know not, but a leaflet was sent me to give my verdict on what I neither tasted nor saw. This leaflet, taken from an English paper, pronounced the Canadian honey as the "finest in the world," which could be construed only as an assertion without the slightest proof. Had the Canadians sent me a sample of their honey I would have given a true verdict of its quality so far as my knowledge of honey went, but being deprived of that I could not do otherwise than remain silent. I have not the slightest suspicion of the Canadian honey being otherwise than pure and of good quality, but that is all I can say of it. Unfortunately for bee-keepers and consumers of honey (who will by constant use acquire a taste for an inferior article, and prefer it to the genuine) there is at the present time a large quantity of glucose in the market being sold as honey. I have two samples of the spurious article said to be gathered from two distinct flowers, and there is not the slightest perceptible difference in the flavour of the two varieties, and there is no difficulty in producing a similar compound with glucose as the base. I read an advertisement lately of a packer saying that at one time he mixed his honey with glucose, but he found that through educating the people to what genuine honey was like, he had discontinued the practice. This confession does not assure us of the genuineness of recently imported honey.

The Glasgow authorities, according to the daily papers, have been investigating the matter, but unfortunately their analyst has stultified himself by saying that "Although the honey shows an excess of adulteration, the syrup by being given to the bees might be termed pure honey." When such utterances come from professional men it augurs ill for the speedy termination of adulterated honey.

The present year has not been a very productive one on the whole, and the quantity of honey is below the average. Yet much of last year's honey remains unsold, and this year's white comb-honey is unsaleable. There has been a great demand for Heather comb, but in many instances there is none to sell. In fact, I have seen few first class samples of Heather comb this year. But why this prejudice against the fine Clover honeycomb? Some say that it is because of the superior flavour of the Heather honey, but in every instance this is not the case, but because of the suspicion that it is sugar. If societies would exert themselves to discover spurious honey and expose the persons offering it for sale it would have a deterrent effect, and honest bee-keepers would reap a benefit thereby. Then after nothing but the pure nectar was in the market there would be a corresponding demand for it as for the Heather comb. When consumers have faith in the producer then honey will be more easily disposed of, and when the monopoly of honey companies is broken up then the bee-keeper will get better value for his produce. Whenever bee-keepers establish a system that will convey the honey direct from the apiary to the consumer or to their neighbourhood, then a large amount of needless expense in conveying it to a central dépôt is obviated.

The same rules apply to fruit, and I think a national scheme such as proposed by "A Hallamshire Bee-keeper" for honey, and in conjunction with one another, would lessen the expense of working, and a larger return for all produce would be the result, while at the same time glutting the markets would be entirely avoided, and the produce could be sent direct to where it would be retailed.

When goods are brought under the auctioneer's hammer, unless they are scarce, they never realise their value. Purchasers combine and will not bid, and the goods are often sold at less than a third of what they are afterwards retailed at. Then private purchasers are debarred from buying at these sales; everything goes against the producer. It was simply vexing to see the little money obtained for fruit sold in the markets this year, not as much in many cases as would pay the freight. Some system different from the present one for disposing of our produce, and one that will remunerate the producer better, is really needful, but more must be done than grumble. We must all put our shoulders to the wheel.

A great quantity of fruit is brought to this country in such a condition as to be utterly unfit for human consumption. Yet this is bought at a cheap rate by boilers, mixed with glucose and gelatine, much of which is made from the remains of dead horses, and is also used largely in making confections. If such samples of fruit were consigned to their proper place there would be a greater demand for home-grown fruit, and people would not be compelled to eat such abominable compounds, manufactured, too, in close proximity to our sanitary officials.

Changes are not always improvements, but if producers would only combine and take steps to supply the public with genuine jam made from fresh fruit and good sugar, and establish a system whereby everyone could buy alike and on the same terms, they will not only benefit themselves, but be public benefactors. I have no intention of maturing any plan to effect the foregoing, but will help all I can, and advise all concerned to peruse the prospectus as promulgated by "A Hallamshire Bee-keeper." The following account of the way the Scotch market was conducted in Glasgow before auctioning was in vogue may be interesting:—The produce was taken to the City in the early morning or night before. The carts containing the produce were properly arranged; the disposers retired to a room where the carts and purchasers could be seen. The latter consisted of merchants, hawkers, tradespeople, and people of every class, rich and poor. The disposers, before the market was opened, calculated from the number of people and baskets what sales were likely to be effected, and fixed their prices accordingly. The only restriction in selling was that nothing less than a certain quantity would be sold, and those not wishing to take the quantity had to purchase from the retailer at a slight advance on the market price. Of course that or a similar system would not meet the approbation of merchants of the present day, but it would put more money into the pockets of the raiser, who has the best claims to any profit that is going, and if by any means markets can be prevented from being glutted, it will be but one of many that the producer can benefit himself by, and when some such system is secured none will be better pleased to see it than—A LANARKSHIRE BEE-KEEPER.

NOTES ON THE WEATHER AND BEES.

SNOW covers the ground here to a depth of 3 inches, the only snow that has lain for more than two or three hours this winter. The lowest temperature that has been this year is 20°, and the mean up to the 7th 32°. With the exception of Wednesday, the 3rd inst., when we had a disagreeable day of sleet accompanied by a moderate wind; we have had no tempest. The ground beneath the snow is covered with ice. The snow freezing as it fell prevented me clearing it away from the front of the hives, as is my usual custom, with a bass broom, so I have left it undisturbed, for while the temperature remains at freezing there is not much danger of the bees making an attempt to leave the hive. Then, as snow upon the roofs of the hives acts beneficially by keeping the frost greatly from entering the hive, and as all my hives are so constructed that melted snow cannot penetrate them, I will not disturb it until I observe a sure rise of temperature is likely to take place. Should a sudden rise of temperature take place through the day I shall close the hives and ventilate from below until the ground is cleared of the ice and snow. Those who attempt to shut in the bees that have not provision made for ventilating other than the entrance ought to be careful that they do not suffocate or in any way to unduly raise the temperature of the hive. Although the bees may not be killed, incipient foul brood is sure to follow the change brought on the contents of the hive by the act, and which can only be avoided by using ventilating floors or some other easy method of ventilating, so that the bees will not be disturbed by any jarring under the manipulation.

On the first favourable day that the bees are likely to fly I shall have in readiness a few beated fire bricks, and if any of the hives show weakly bees a warm brick will be slipped beneath the perforated zinc. The heat rising therefrom strengthens swollen bees greatly, and enables them to fly and return to their hive, while without that they would fall to the ground and be lost.

Then as soon as the majority of the bees have flown I shall give those syrup that I have the slightest apprehension of being short of food, and continue to feed until they have as much as will tide them over till May. It is much safer and better in every way—where bees require it—to feed early in the year than postpone it till March, as then there is much brood in the hives, and bees feed reluctantly, and should not be disturbed if the weather is cold and windy. March being the most treacherous month of the year for bees, they should be at that time in a state so that they may not be disturbed.—L. B.-K.

TRADE CATALOGUES RECEIVED.

- Chr. Lorenz, Erfurt.—*Illustrated Catalogue for 1887.*
 Dobbie & Co., Rothsay, N.B.—*Catalogue of Choice Seeds and Plants for 1887.*
 J. Cheal & Sons, Lowfield, Crawley.—*Descriptive List of Garden Seeds, 1887.*
 Charles Sharpe & Co., Sleaford, Lincolnshire.—*Catalogue of Garden and Farm Seeds, 1887.*
 Daniels Bros., Norwich.—*Illustrated Guide for Amateur Gardeners.*
 R. B. Laird & Sons, 17, Frederick Street, Edinburgh.—*Catalogue of Kitchen Garden and Flower Seeds, 1887.*
 Friedrich Adolf Haage, jr., Erfurt.—*Catalogue of Succulent and Cactaceous Plants.*
 Vickers Collyer & Co., Leicester.—*General Catalogue for 1887.*
 Wm. Cutbush & Son, Highgate, London.—*Catalogue of Flower, Vegetable, and Farm Seeds for 1887.*
 Barr & Son, 12 and 13, King Street, Covent Garden.—*Catalogue of Flower and Kitchen Garden Seeds, Plants, &c.*

James Dickson & Sons, 103, Eastgate Street, Chester.—*Catalogue of Vegetable and Flower Seeds for 1887.*

G. Bunyard & Co., Maidstone.—*Catalogue of Vegetable and Flower Seeds, 1887.*

Richard Dean, Ranelagh Road, Ealing.—*Catalogue of New and Choice Potatoes, Primroses, Polyanthus, and Hardy Plants.*

William Bayler Hartland, 24, Patrick Street, Cork.—*Year-Book of Seeds for 1887.*

Jno. Jefferies & Son, Cirencester.—*Catalogue of Seeds, Bulbs, and Plants, 1887.*



*** All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

THE INDEX.—In consequence of the issue of the index for binding with the half-yearly numbers, from the beginning of July to the end of December, 1886, several excellent articles and interesting communications that are in type cannot be inserted this week.

Orchids (J. E. R.).—You have a very good selection of Cattleyas, and you could not do better than select a few of the more distinct varieties of those you name. The following might be also added with advantage:—*Cattleya gigas*, *C. Gaskelliana* (one of the *C. labiata* type), *C. Percivaliana*, and *Laelia purpurata*.

The Eucharis Mite (Hall).—We are pleased to hear you have succeeded to your satisfaction in extirpating this destructive pest that appears to be spreading amongst bulbous plants in this country. You are, of course, quite justified in making the best use you can of your discovery and in advertising the liquid for sale. We know of no better way in which you can make it known, but we think you would not make any mistake by sending sample bottles to persons whose plants are infested with the mite with the object of obtaining corroborative evidence of the efficacy of your mite destroyer. Such testimony from independent and disinterested sources would be its best recommendation.

Ipomæas (Rosa).—Some of these plants are rather variable in colour, but in the cases you name the changes were principally due to the deficient sunlight. We have not seen the Orchid specimen, or it would have been named with pleasure. Our correspondents never trouble us when they put their questions clearly, or send good examples of the plants they wish to be named.

Piping for Heating Entrance-hall (Cambridge).—A coil of about 4 feet length, with six or eight pipes in height, would give you all the warmth required, placing it about the middle of the space or where convenient. Eight rows of 3-inch pipes on each side, or sixteen rows altogether, would maintain a genial temperature without having to heat the pipes highly. Moderately heated surfaces are better both as regards health and economy than are surfaces highly heated. The length of pipes will require to be about 3 feet, or 48 feet altogether, in addition to the ends or boxes of the coil. With the case the coil is ornamental.

Aracarias Failing (A. L.).—If, as you say, the soil is rather thin, the lower branches of the trees are failing from exhaustion, the result probably of drought in the summer and impoverished ground. We have seen great benefit imparted to specimen Conifers by removing the exhausted soil in a circle as wide as the spread of the lower branches, giving very copious applications of liquid manure, then adding fresh soil with wood ashes intermixed, and covering it thickly with manure which was left to decay. If that plan cannot be adopted, then great good may be done by having recourse to the method of renovation described on page 568, the issue of December 23rd, 1886. The address you require is Messrs. Alexander Shanks & Son, Dens Ironworks, Arbroath, and 27, Leadenhall Street, London, E.C.

Small Beet—Iberises (C. T. H.).—The majority of persons complain of Beet being too large. We find Dell's Beet quite large enough grown in deeply worked, free, good soil that has been well manured for the previous crop, as much manure mixed with the soil shortly before sowing the seed often causes the roots to become forked. We grow very fine Beet on ground previously occupied with Celery. The ridges are levelled down, a dressing of soot given, and the ground well forked. The Beet seed is sown during the last week in April if the ground or weather be favourable, or the first week in May. Thinning the young plants is done very early, before they are made weak by overcrowding, and the hoe is run through the ground between the rows very frequently during the season, scattering an ounce of salt to each square yard three or four times at inter-

vals of a fortnight or three weeks, as well as soot, guano, or some other quick acting fertiliser, if in our judgment such may be needed. An ounce of nitrate of soda and twice that quantity of superphosphate of lime applied to each square yard of ground is a good top-dressing for Beet. Early thinning and hoeing between the rows at intervals of a week or ten days, as rather late, are important factors in producing good roots. *Iberis gibraltarica* has much finer flowers than *I. sempervirens* has, but the latter is the hardier, and produces fine masses of flowers in spring. You had better try them both and increase the one that succeeds the best in your garden.

Salt and Lime for Light Soil (W. M.).—Light soils do not require as a rule so much lime as clays, and the quantity depends a great deal upon the presence or otherwise of vegetable or organic matter in the soil. If the soil contains much vegetable matter, as in the case of grass land recently broken up, or is full of decaying vegetable and animal matter from heavy dressings of manure, or rich in humus by a long course of manuring and cropping, 6 tons of quicklime per acre (3 qrs. or 84 lbs. per rod—30½ square yards) is a suitable and sufficiently heavy dressing. If, on the other hand, the land is not "fat" or in fairly good heart, 3 or at most 4 tons per acre will be a proper quantity to apply. The dressing of lime may be given in March, or as soon as the ground is in good working order. Twenty bushels of salt is a maximum quantity per acre, and should only be given in the case of light soil, and where the object is not only to supply salt as a source of fertility, but as destroying slugs. Ten bushels is a good average dressing, and is sufficient in most cases as a manure; but a great deal depends upon the location of the land, for near the sea the application of salt is not of benefit, as the soil contains enough generally, though we have known a light dressing of 5 bushels per acre even near the sea to materially increase the weight of the crops. Salt should be applied in spring either before or after putting in the crops.

Forcing Strawberries (J. B.).—For affording ripe fruit in May the plants should be introduced by or before the middle of February. They should be placed on a shelf near the glass, and not subjected to a higher temperature by artificial means than 50° to 55°, admitting air freely above that, and 60° to 65° from sun heat until the flowering is over and the fruit is swelling freely. The temperature may be increased to 60° to 65° at night and 70° to 75° by day, with an advance of 5° to 10° from sun heat. It will not be necessary to cover the flue with some material that will give out a moist heat, as by so doing the flue would be of little value; besides, sufficient moisture can be obtained by syringing available surfaces in the morning and early afternoon. Seakale is not sold by weight in Covent Garden Market. The heads of the Seakale are cut with a small portion of the crown when 6 to 8 inches long, and arranged in punnets, twelve to eighteen heads being placed, each according to their size. A piece or strip of light coloured blue paper is placed round the middle of the Seakale, which enhances the whiteness, giving it with the rose tips of the Kale quite a taking appearance.

Pruning and Top-dressing Vines (Merchant).—You ought to have very good Grapes next year, provided you do not overcrop the Vines nor overcrowd the foliage. When, what is termed the long spur system of pruning is adopted by amateurs they are very apt to err in those respects. If the laterals are not much more than a foot apart on each side of the rods you will do well to consider the advisability of shortening every alternate lateral to the lowest good bud, as close to the main rod as possible, taking one growth from each of these spurs this year, not allowing it to fruit, and it would in all probability be in good condition for bearing in 1888. The longer pruned laterals will be more than sufficient for producing a crop during the ensuing season. If you cannot see your way towards adopting the plan suggested you will need to exercise sound judgment in disbudding in spring, not only with the view to the current year's crop of fruit but in the production and maturation of wood for the following season. You may prune your Vines now, without waiting for the "one or two leaves at the points" to fall. You cannot do better than add lime rubbish, and especially smashed oyster shells, to your heavy soil. With plenty of these, which are excellent for Vines, you may dispense with lime rubbish, as the shells are composed of more than 90 per cent. of carbonate of lime with a little phosphate and animal matter. The smaller they are broken the better. Top-dress the Muscat Vine border as well, where the roots are coming through the surface. One barrowful of crushed shells may be added to about five of the soil if it is very strong. You have done well by notching the old roots and top-dressing to get the border so well filled with active fibres bristling through the surface. Do not permit it to be loose by deep digging, nor dry at any season of the year, though, obviously, the soil must not be decidedly wet, especially in the winter; in the summer the surface should be constantly moist, and this is easily managed with the assistance of manurial mulchings for arresting evaporation of the water that is periodically applied.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (J. H.)—We do not undertake to name florists' flowers.

COVENT GARDEN MARKET.—JANUARY 12TH.

PRICES remain without alteration, business being still very quiet. Hot-house Grapes in heavy supply at low values. Large cargoes St. Michael Pines to hand this week.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.		
Apples	1	6	to	4	0	Melon	0	0	to	0	0
" Nova Scotia and						Oranges	100	6	0	12	0
Canada, per barrel	10	0	13	0	0	Peaches	0	0	0	0	0
Cherries	1	0	0	0	0	Pears	0	0	0	0	0
Cobs	100	lb.	60	0	70	Pine Apples English ..	1	6	2	0	0
Figs	0	0	0	0	0	Plums	1	0	0	0	0
Grapes	0	6	3	0	0	St. Michael Pines ..	2	0	5	0	0
Lemons	10	0	15	0	0	Strawberries	0	0	0	0	0

VEGETABLES.

		s.	d.		s.	d.			s.	d.		s.	d.
Artichokes	.. ..	dozen	1	0	to	0	0	Lettuce	.. ..	dozen	1	0	to 1 6
Asparagus	.. ..	bundle	0	0	0	0	Mushrooms	.. ..	punnet	0	6	1	0
Beans, Kidney	.. ..	per lb	0	6	1	0	Mustard and Cress	.. ..	punnet	0	2	0	0
Beet, Red	.. ..	dozen	1	0	2	0	Onions	.. ..	bunch	0	3	0	0
Broccoli	.. ..	bundle	0	0	0	0	Parsley	.. ..	dozen bunches	2	0	3	0
Brussels Sprouts	.. ..	1/2 sieve	2	0	2	6	Parsnips	.. ..	dozen	1	0	2	0
Cabbage	.. ..	dozen	1	6	0	0	Potatoes	.. ..	cwt.	4	0	5	0
Capsicums	.. ..	100	1	6	2	0	.. .., Kidney	.. ..	cwt.	4	0	5	0
Carrots	.. ..	bunch	0	4	0	0	Rhubarb	.. ..	bundle	0	2	0	6
Cauliflowers	.. ..	dozen	3	0	4	0	Salsafy	.. ..	bundle	1	0	1	0
Celery	.. ..	bundle	1	8	2	0	Scorzoneria	.. ..	bundle	1	6	0	0
Coleworts	.. ..	doz. bunches	2	0	4	0	Seakale	.. ..	per basket	1	6	2	0
Cucumbers	.. ..	each	0	3	0	4	Shallots	.. ..	.. lb.	0	3	0	6
Endive	.. ..	dozen	1	0	2	0	Spinach	.. ..	bushel	3	0	4	0
Herbs	.. ..	bunch	0	2	0	0	Tomatoes	.. ..	.. lb.	0	6	1	0
Leeks	.. ..	bunch	0	3	0	4	Turnips	.. ..	bunch	0	4	0	0

PLANTS IN POTS.

		s.	d.	s.	d.			s.	d.	s.	d.	
Aralia Sieboldi ..	dozen	9	0	to	18	Ficus elastica ..	each	1	6	to	7	0
Arbor vite (golden)	dozen	6	0	9	0	Fuchsia	per dozen	0	0	0	0	0
" (common)	dozen	6	0	12	0	Foliage Plants, var.	each	2	0	10	0	0
Azalea	per dozen	24	0	42	0	Hyacinths	per dozen	9	9	12	0	0
Bedding Plants, var.	doz.	0	0	0	0	Hydrangea	per dozen	0	0	0	0	0
Begonias	dozen	4	0	9	0	Ivy Geraniums ..	per dozen	0	0	0	0	0
Chrysanthemum ..	dozen	0	0	0	0	Lilium anatum ..	per doz.	0	0	0	0	0
Cockscombs	per dozen	0	0	0	0	Lobelia	per dozen	0	0	0	0	0
Cyperus	dozen	4	0	12	0	Marguerite Daisy ..	dozen	6	0	12	0	0
Dracæna terminalis,	dozen	30	0	60	0	Mignonette	per dozen	0	0	0	0	0
" viridis	dozen	12	0	24	0	Musk	per dozen	0	0	0	0	0
Erica, various	dozen	9	0	12	0	Myrtles	dozen	6	0	12	0	0
" hyemalis	per dozen	12	0	24	0	Palms, in var. ..	each	2	6	21	0	0
" gracilis	per dozen	9	0	12	0	Pelargoniums, scarlet,	doz.	6	0	9	0	0
Euconymus, in var.	dozen	6	0	18	0	Poinsettia	per dozen	12	0	0	18	0
Evergreens, in var.	dozen	6	0	24	0	Primula sisensis ..	per doz.	4	0	6	0	0
Ferns in variety ..	dozen	4	0	18	0	Solanums	per doz.	9	0	12	0	0

CUT FLOWERS.

		s.	d.		s.	d.			s.	d.		s.	d.
Abutilons ..	12 bunches	2	0	to	4	0	Lily of the Valley, 12	sprays	1	0	to	2	0
Arm Lillies ..	12 blooms	5	0		8	0	Marguerites ..	12 bunches	2	0		6	0
Asters ..	12 bunches	0	0		0	0	Mignonette ..	12 bunches	0	0		0	0
Azalea ..	12 sprays	1	0		1	6	Narciss, Paper-white, bunch	0	4		0	6	0
Bouvardias ..	per bunch	0	6		1	0	" White, English, bunch	1	3		1	6	0
Camellias ..	12 blooms	2	0		4	0	Pelargoniums, per 12 trusses	0	9		1	6	0
Carnations ..	12 blooms	1	0		3	0	" scarlet, 12 trusses	0	6		1	0	0
" ..	12 bunches	0	0		0	0	Roses ..	12 bunches	0	0		0	0
Chrysanthemums	12 bches. 12	0			24	0	" (indoor), per dozen	1	0		2	0	0
" ..	12 blooms	1	0		2	0	" Tea	dozen	2	0		4	0
Cornflower ..	12 bunches	0	0		0	0	" red (French) ..	dozen	2	6		3	6
Dahlias ..	12 bunches	0	0		0	0	Parma Violets (French)	6	0		7	6	0
Epiphyllum ..	doz. blooms	0	6		0	0	Poinsettia ..	12 blooms	4	0		9	0
Encharis ..	per dozen	4	0		8	0	Primula (single) ..	per bunch	0	4		0	6
Gardenias ..	12 blooms	9	0		24	0	" (double) ..	per bunch	1	0		1	6
Gladioli ..	12 bunches	0	0		0	0	Pyrethrum ..	12 bunches	0	0		0	0
Hyacinths, Roman,	12 sprays	1	0		1	6	Stocks, various ..	12 bunches	0	0		0	0
Lapageria, white,	12 blooms	2	0		4	0	Tropeolum ..	12 bunches	1	6		2	0
Lapageria, red ..	12 blooms	1	0		2	0	Tuberose ..	12 blooms	1	0		2	0
" longiflorum, 12 blms.		0	0		0	0	Violets ..	12 bunches	2	0		2	6
Lilac (white), French, bunch		6	0		8	0	" Czar, French, pe bunch	1	6		2	6	0



SOIL LESSONS.

WHAT a singular conception of Mother Earth and her requirements had our forefathers! To read the clauses of an old lease, replete as it is found to be with quaint expression and nonsensical restrictions, affords one a curious insight into the degree of knowledge possessed by farmers in bygone days, for we may be assured that such restrictions were made and received in perfect good faith as indispensable to successful farming. Agriculture then was hardly regarded as a science; soils were treated just as though they were animals requiring rest, and which it was attempted to afford them by long fallows. A regular shift, whether four-course or otherwise, was regarded as part and parcel of all good husbandry; the soil must have a rest every four or five years, or crops would fail, and farmers fail too. We have ere now told how upon one of our farms—a small one of 125 acres—we found 30 acres in fallow when it came upon our hands, but this year not an acre of it will be suffered to be uncropped. To be able to do this, however, a farmer must be on the alert to turn every opportunity to account to render the soil clean and fertile. Clean and fertile! mark the words, reader; and mark, too, how frequently we use them. Is your soil in a condition to justify your use of such an expression as descriptive of it? Is it clean in the full and most comprehensive meaning of the term? Clean by the absence of foul

weeds as well as of stagnant water? Is it really fertile by being stored with those manurial constituents required by the crop which you intend next to sow or plant in it?

To every manager of a farm we would put the important question, What do you know about the soil of your farm, its condition and requirements? To go on ploughing and sowing year by year without a full knowledge of cause and effect in relation to what we do is certainly a veritable groping in the dark, yet it is done, and we have reason to fear will continue to be done for some time to come yet. We recently had occasion to address an assembly of farmers, eminently respectable men, most of them holding large farms; some of them in the occupation of several farms, and so they might be regarded as fairly representative of the class. We tried to turn the opportunity to account by dwelling at some length upon soil treatment, and upon the application of manures. Very earnest attention was paid to our remarks—so earnest that one slight inaccurate statement of results was immediately detected and challenged to our great delight. The manner in which our address was received was a revelation to us; for, indeed, it is no light matter to attract and hold the attention of earnest thoughtful men upon a matter of such vital importance. It rendered us hopeful, and we hope more earnest in our efforts to show both by example and precept that something more is possible in farming results than has been hitherto achieved.

"Have we yet touched perfection in our practice as farmers?" was one of the questions which we put to our hearers upon the occasion referred to, and we repeat it here. What do farmers generally know about the soil and its requirements? Now we do not by any means think that a strictly scientific training is at all necessary for the ordinary farmer, but we do assert most strongly that every farmer is bound to ascertain if the soil of his farm is clean and fertile, and if it is not to make it so at once. There is probably none of the ordinary duties of mankind upon which wastefulness and carelessness has laid a more fatal grasp than upon those of farmers. Some return upon expenditure of time and money was always possible before the depression. If the crops were light prices were high, and though there might be some waste in the use of farmyard manure, yet it did some good. Such reasoning and the practice which led to it was all very well for a while, but that it should sooner or later lead to disaster was inevitable. Bad seasons came, low prices followed, short crops and falling prices were said to have caused the failure of many a good man and true, and they undoubtedly did so, but it was bad practice combined with unfavourable seasons which brought about the ruin of so many.

Again and again have we dwelt upon soil treatment, and we purpose devoting a few papers now to a somewhat closer and, if possible, more practical treatment of a subject fraught with such vital importance. Once get the soil in really good condition, and then it becomes as easy to keep it so as it does to obtain full crops from it. Earnestly do we desire to assist our readers to attain at least to such a standard of excellence.

(To be continued.)

WORK ON THE HOME FARM.

Snow and frost have laid hold upon the land, and so thoroughly the ploughing has been impossible since writing our last note. We have seen with regret the carting of much farmyard manure out upon the land, and many a time and oft as we have driven past such fields have we wondered what the per-centage of loss from such manure was. That it is considerable there can be no doubt, yet there are the little heaps of manure scattered all over the field ready for spreading before the plough when the frost breaks. It is not improbable that this turning to so-called advantage of frosty weather for carting manure may be thought brisk practice by those who do it, but alas! for the waste of all those subtle gases which constitute the quintessence of the manure heap. The snow covered the land so thickly that frost was kept out, but though we had plenty of trenching in hand we would not have the snow buried in the soil, and so all the men were turned upon the land drains which could well be got on with. Glad are we to do this, for we have so much trenching and tree-planting to do this season that we shall require every stroke to tell when such work is again possible. Several of the horses have been employed

in drawing timber off the land, the snow proving a help rather than a hindrance for such heavy work. Despite all our care we have had one valuable man injured at this work, and have lost his services for a week or two. The amount of carelessness which prevails among men thoroughly accustomed to timber work is surprising. We were recently watching the cutting down of an Elm about which we had repeatedly cautioned the workmen, for Elms are notoriously unsafe trees. The tree in question was to all appearance sound, yet it fell without warning before they were half through the trunk, and the centre of which proved rotten. Many ornamental trees in the park have sustained much injury from the snow. Cedars and Scotch Firs have suffered more than any other trees. The flat branches of the Cedars soon become laden with snow, which, if thawing slightly, clings together, and so becomes heavy enough to cause the branch to break off. It is probably owing to the brittleness of the wood that so many branches of Scotch Firs have been broken off. We hear of grand old Cedars upon other estates almost denuded of branches by the snow.

REVIEW OF BOOKS.

Permanent and Temporary Pastures. By MARTIN J. SUTTON. Second edition. London: Hamilton, Adams & Co.

It is less than twelve months since we noticed the first issue of this work, and already it is our privilege to announce the appearance of a second edition. What we said commendatory of the first edition we can repeat with certainty of that which is now before us. The way in which the work is turned out is beyond all praise; and the illustrations are admirable. It is by far the best and most useful treatise on the subject which has yet appeared, and we do not hesitate to express our conviction that this second edition will have as rapid a sale as the first. We commend it very highly to the attention of all who are engaged in the cultivation of the soil, or who are desirous of becoming acquainted with the forage plants of the country. It contains additional matter of great interest by Dr. Voelcker and other scientific and eminent agricultural authorities.

EGGS IN WINTER.—Referring to the correspondence in your column concerning winter laying hens and pullets. I keep twenty-five cross-bred Dorkings and Cochins. During the past month (December) these have given me 104 eggs. They have a good grass run, and are fed with wheat grain, and scraps.—COCHIN.

OUR LETTER BOX.

Treatment of a Two-year Layer (G. S.).—The soil of your field which has been down two years in Clover and Rye grass, being so foul with grubs, it would not answer for Potatoes this year. To pare and burn now is not practicable, nor would it answer thoroughly if you could do it, many of the grubs probably being so deeply buried in the soil that they would escape destruction. You say you have a good plant of grass; we should therefore graze or mow the first crop of grass, and then at once pare and burn as much of the surface as you can, only take especial care to let the burning follow the paring at once in order that the larva of insects have no time to escape or to burrow downwards. Follow the burning by deep ploughing, then apply a dressing of quicklime fresh from the kiln, which at once work well into the soil with a cultivator; plough again, and then the soil may be reasonably considered clean, and you have only to apply manure to render it suitable for Potato culture.

Bare Necked Fowls (H. T. H.).—There is a feather-eater amongst them. Find her out if you can, and get rid of her. Meanwhile give some sulphur in their soft food and discontinue the maize.

METEOROLOGICAL OBSERVATIONS.


CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain
	Barome- ter at 32 nd Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperatnre.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass	
1887. January.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
Sunday 2	30.194	18.8	18.6	N.E.	35.0	33.2	14.5	33.3	11.0	0.098
Monday 3	29.747	37.3	36.8	S.	34.3	38.3	16.4	39.4	12.9	0.236
Tuesday 4	29.308	30.8	30.6	N.E.	34.2	36.3	30.6	38.5	30.4	0.104
Wednesday 5	28.812	34.4	34.1	N.W.	34.6	39.8	27.9	51.7	22.7	0.019
Thursday 6	28.872	33.9	33.2	Calm	34.3	35.4	28.7	39.1	26.4	—
Friday 7	29.018	33.3	32.6	Calm	34.3	39.4	29.9	47.2	23.0	0.123
Saturday 8	29.080	34.1	32.8	S.	34.3	37.2	33.0	47.1	31.8	0.028
	29.304	31.8	31.2		34.4	37.4	25.9	42.3	23.3	0.708

REMARKS.

2nd.—Very cold, fog, increasing towards noon, dense till 2 P.M., then suddenly cleared, slight snow 9 to 9.15 P.M., and again later.
3rd.—Dull, drizzling, and thawing, rain, turning to snow at night.
4th.—Two or three inches of snow on ground, and snow almost continuously till 11 A.M., afterwards fair.
5th.—Snow early, about an inch deep by 9 A.M., and at frequent intervals till 11 A.M., then fair and the afternoon bright.
6th.—Dull and foggy all day, a little sleet in morning, fine night, lunar halo.
7th.—Dull early sunshine for five minutes about 10.30 A.M., then dull and foggy with slight showers at intervals.
8th.—Rain in small hours, slightly foggy morning, fine after.
A very wintry week with a good deal of snow. Temperature rather more than a degree below that of the preceding week, and about 7° below the average.—G. J. SYMONS.



COMING EVENTS

20	TH	Linnean Society at 8 P.M.
21	F	
22	S	Royal Botanic Society at 3.45 P.M.
23	SUN	3RD SUNDAY AFTER EPIPHANY.
24	M	Society of Arts at 8 P.M. Lecture on the Diseases of Plan's.
25	TU	
26	W	

SITES FOR ORCHARDS.

EXCELLENT articles on the cultivation of hardy fruits have often appeared in the Journal, but as every year produces fresh readers and many fresh planters of fruit trees, there can be no harm done in again turning to a subject upon which so much depends. One can hardly help wondering what will result from such an enormous number of fruit trees that are annually sent from the large nurseries. Owing to the depression in agriculture the last few years, many have turned their thoughts to fruit growing, and farmers have planted by the hundred trees supplied them by the landowner with a view of making their farms more remunerative. No doubt this is a step in the right direction, and ought in the future to be the means of limiting the importations of foreign fruit into the English markets. But sometimes our best endeavours are followed by disappointments. There are many evils which beset the British fruit grower. Among the worst which we can mention are the late spring frosts, which sometimes in one night do damage to an enormous extent, and it should be the object of planters to guard against this as much as possible by selecting a site where the trees will, to a certain extent, be proof against its influence.

In this neighbourhood, where fruit is grown very extensively, a good opportunity is afforded of noting the results from orchards under various circumstances and conditions, and it is clearly seen that those whose orchards are on high ground are much more fortunate than their neighbours whose are situated in lower and more damp positions. A convincing proof of this is often witnessed in an orchard about 400 yards from where these notes are written. Some fifteen years ago several thousand trees of different kinds of fruit were well planted at considerable expense, and ever since this have received the greatest care from the same owner, but the results have never been satisfactory; in fact, sometimes two and three years in succession there has been next to no return. I remember in May, 1885, looking down upon the orchard in question from this higher ground; it had the appearance of being enveloped in a canopy of snow, every tree was so laden with blossom, but, alas! the next morning the appearance was very different. What looked so bright and promising only a few hours before was now black and distressing to witness. The frost had done its work thoroughly, and the owner was the loser of what ought to have turned into several thousand bushels of fruit, while here on the higher ground fruit trees received no material injury; not that there was any difference in the temperature, but the atmosphere

was very different in the two situations. Here we were high and dry, but below the air was charged with moisture, which is natural to most valleys, but more so in the case under notice, as a small river ran round two sides of the orchard, the dampness arising from which would greatly help in the work of destruction.

This is only one case, but anyone travelling through a fruit district in the summer months can easily discover where the frost has been most keenly felt, and it is nearly always in low damp situations. Seeing, then, that the frost has least destructive power on higher ground, it is much the safer plan to choose such for growing fruit, even if the soil is very poor in comparison to that of a valley, as the former may be enriched, but there is no control over a bad situation.

As all fruit trees are benefited by protection of some kind, especially from the north and east, care should be taken in not going to the extreme by selecting an exposed and bleak position; but if possible choose a site where the ground rises behind it, or is protected by a wood or row of large trees. Failing either of these, money is well spent in planting a row of Austrian Pines on the exposed sides, these in a short time will form a capital break.

It is true that trees planted in a valley often make more headway than those on the higher ground, but this is no recommendation, as the many evils arising therefrom often prove. What is the advantage of abundance of wood that, unless the autumn is exceptionally fine, which is rare, never ripens, and only produces wood buds instead of smaller wood well ripened and set with blossom buds?

Other evils I think can fairly be traced to a low and damp situation. Take a gross young Apple tree, which in the autumn is almost as soft and green as a Leek, comparatively speaking. What condition is it in to withstand severe frosts such as we have experienced the last month? At times the sap under such a soft bark must be a frozen mass, and if this can pass away without leaving some evil trace, it seems against the natural rule of things. Does it not induce canker, which is the dread of all planters? There is a diversity of opinions as to the cause of this evil, but who can prove that the above state of things may not largely account for its appearance? Some writers hold that canker is found in very high and dry places; true, but that is mostly on aged or debilitated trees approaching natural decay; but I have always found it more prevalent in damp places.

Trees on high and warm land produce fruit of the best flavour, a point that is not taken into consideration nearly so much as it should be, and it is impossible to obtain this great advantage unless both root and branch are in a thoroughly healthy state.

Climate varies much, not only in different districts of England, but often in localities in one county, that it is of great importance that the planter take this into consideration, and also find out which varieties have proved to yield good crops within his field of action. By so doing much needless expense must be saved, and several years' anxious waiting, followed by disappointment, averted. I will not venture to give a list of varieties, but while writing on spring frosts I am reminded of the Court Pendû Plat Apple. This is truly called the Wise Apple, as it is seldom seen in flower till after all danger of frost is over; but as early Apples are sought after as much as late ones, several varieties must be planted; and though there always were losses and failures, and we must expect some in store, we should try and profit by

them and adopt such measures that conduce to their reduction, one of these, and not the least important, being the exercise of sound judgment in choosing sites for orchards.—R. PARKER, *Imney, Droitwich.*

THE FLORIST TULIP.

(Continued from page 560, last vol.)

On the permanent way of a railroad, no train can travel safely if there be an unnoticed obstacle on the line ; and so some readers of these papers might never arrive satisfactorily at the terminus of them, if I placed something on the line or left a rail up, in the sense of using technical terms, without an explanation to convey an idea or to carry a train of thought along without a breakdown.

It will be well, therefore, to state what variations in the florist Tulip are signified by the special class names under which the different combinations of colour are known. The flower is divided by its colours into three great classes called Bizarres, Byblœmens, and Roses. These are the broadest distinctions there are. Rectified Tulips and breeders are only conditions under these ; and a flamed or feathered style of marking is only a subdivision in one or another of these. One of the classes is composed of such Tulips as have a ground colour of yellow, which varies much in shade ; while in the remaining two classes the ground colour is white, which ought to be, but is not always, of the utmost whiteness.

The yellow-ground flowers are the Bizarres, (the odd one out). This is a very powerful class in superiority both of numbers and in qualities of excellence. The black and gold of such flowers as Masterpiece and Commander, and the red and gold of those like Orion and Dr. Hardy, have a very masterful effect upon a bed in bloom ; so that as far as a balance of colour is concerned, (though the florist makes no sacrifice for this sort of thing,) the Bizarres can afford to be in a minority to either of the others. Rich and warm and strong in colouring, they are the very sunshine of the bed, and a powerful medium of contrast between their sisters, light and dark, of the white ground classes. Black is always a highly valued colour for the markings on a Bizarre Tulip, but a great many are feathered or flamed with shades of umber brown, or a sort of mahogany red not easy to describe, of which old Royal Sovereign (cumbered with several aliases bestowed on different breaks from its breeder) may be taken as a type. The work of such raisers as Thomas Storer, John Hepworth, and Luke Ashmole upon Bizarres containing red in their markings has been so great, that to their long patient labours we owe, if not the creation, yet the elevation of the scarlet Bizarre into a class worthy of a name of its own, and as distinct from the Bizarres of black colours as are the violet blacks and scarlets of the white ground Byblœmens and Roses from each other. Coming now to these white ground classes, the one which is termed Byblœmen includes all Tulips feathered or flamed with shades of violet, light or dark, with blue-black or with chocolate brown. In these flowers, any shade of red in the marking is a weakness, as trenching upon the colour prerogative of the Roses. The violet of the Byblœmen cannot be too blue or too deeply intensified with black ; shades of red in it, forming an amiable red plum common in the Auricula, are an abomination in the Byblœmen Tulip, and culminate in a half-way flower known and not liked under the conglomerate name of Rosy Byblœmen.

The Byblœmens, familiarly shortened down to Bybs, or by a stretch of courtesy called Byblooms, are a most delightful class, the most removed perhaps of any from the ordinary type of Tulip, and they are also the most difficult class (a charm to the florist) in which to obtain flowers of surpassing excellence. To paint a fancy while the ice bears, the feathered Byblœmen is to me like the turn from "inside back to outside forwards," the beauty and difficulty of which, on any large scale, all good skaters can appreciate. The Byblœmens possess a very marvellous and attractive style of beauty, grave and cool and full of repose. When I think of Talisman feathered—so rarely so seen—with long pencilled lashes of blue black round the pure white petals, or Mrs. Cooper (Boardman's No. 2) absolutely perfect with black coffee feathering round her great white cup, I say there is no hardy bulb to excel the florist's Tulip, and no Tulip lovelier than the feathered Byblœmen.

The remaining class of white ground flowers have bright red and scarlet markings, sometimes pinker in the beam of the flame, as bluer in that of the Byblœmen, or as the claret in some of the flamed Bizarres. This scarlet-and-white class bears the pretty English name of Roses, in allusion it may be to the colours in which they resemble the Queen Dowager of Flowers. (I may as well admit that the prickly Rose is by no means my favourite flower. I better love the graceful and grotesque in Orchids, to say nothing of my earliest love, the Auricula.) The Rose Tulip is the

fairest of the fair, sprightly, brilliant, light, and graceful—the fairy of the Tulip bed—as the Bizarre is the Royalty of it, and the Byblœmen its solid strength. Rose Tulips generally bear some feminine name, as if in recognizance of their gentle power, and no Tulips are so winsome in the breeder form as many of the Roses, than which no Rose bud ever blushed more exquisitely. Loveliest of rose pink shades are the breeder forms of such as Lady Constance Grosvenor, Mabel, Mrs. Barlow, and Baroness Burdett Coutts ; while in soft or glowing scarlets there are Annie McGregor and her sister Lucretia, Mrs. Lea, and Industry. Most of these break into brilliant feather and flame. Not all, as I said before, of lovely Rose breeders. But I will not raise the curtain. Growers in front know what is behind.

To love the Tulip at all is to love it in the entirety of the triple alliance of Byblœmen, Rose, and Bizarre. We cannot say which form we like the best, if by that we are to say we like the others less. In this floral form of The Three Graces we cannot dissociate, disentwine one without destroying the harmony and beauty of the whole fair group.—F. D. HORNER, *Burton-in-Lonsdale.*

(To be continued.)

FORCING RHUBARB.

NUMEROUS methods are adopted for forcing Rhubarb, and it really would be a difficult matter to single out the best. It is such a simple operation to place the plants where they can have a little heat to excite growth, that the merest novice need not be instructed, and if anyone has a stock of roots, Rhubarb from December onwards may easily be had. We note the remark of "W. T.," who advises that the roots should be out of the ground for some time before placing them in warmth. This advice is sound. When the plants are in course of preparation, plenty of room to develop the foliage and admit light and air is of moment. Free exposure to sun matures the roots in good time so that they become rested and ready for early work. Two of the best for general purposes are Prince Albert, for first supplies, and Victoria for succession. The means by which the best early Rhubarb (in private places) has been forced, according to my observation, was on the fermenting bed used in the centre of a vinery newly started ; with little trouble taken beyond syringing the Vines to moisten the rods, almost enough water falling therefrom to keep the Rhubarb in growing condition. The light and air admitted to the Vines were also shared by the Rhubarb, and we think the produce is better grown under such conditions than that which is kept close and dark. Some of the other means of raising Rhubarb are in warm cellars, outhouses, on the manure heap covered with pots and leaves, in Mushroom houses, under stages of hothouses, near boilers, in engine rooms, or similar positions. A good story has been told of a Scotch farmer who lost his stock of cattle by rinderpest, but unwilling to let all his buildings remain empty and unprofitable, carted in Rhubarb, and by means of a portable stove for heat grew immense quantities of fine Rhubarb. A baker within a mile of where I now write grows early Rhubarb for sale and for use in pastry, &c., behind his bakehouse, where there is plenty of heat for the purpose. I have seen very fine stalks turned out of these primitive quarters, and no doubt there is plenty of good produce at the present time.

The old system of placing pots over the crowns, then a coating of warm manure or leaves to raise heat, is still practised, and where the Rhubarb bed is close to the manure yard and the covering can be performed by a minimum of labour, this old-established way is not to be despised. While we make the forcing of Rhubarb in private gardens of so much importance, the whole work is insignificant when balanced against that of the extensive market growers. It is more particularly to the economy and ingenuity practised by these cultivators I would now revert. The practice followed by one who grew plants, fruits, and cut flowers on an extensive scale for Covent Garden Market, and to meet the demands of a first-class West-end shop, are very distinct in my recollection. I was employed there, as a youth, and had to take a share of all kinds of work (rough and smooth) in the establishment. The extent of glass was enormous and well adapted for the purpose of market growing. Large quantities of an early red variety of Rhubarb were grown for the earliest supply. It was carted in from the fields during the early part of November and placed by the sides of the hot-water pipes under side stages where plants were forced for early cut flowers or to be carted by hundreds to market. Watering the plants met the wants of the Rhubarb by keeping the roots (which had old tan packed round them) in a healthy moist state. Sometimes a watering at a temperature from 80° to 90° was given to push forward growth. In December the produce was plentiful. The larger stalks were gathered each morning and placed in round baskets evenly and with due care, keeping them upright and all about the same size. The crimson stalks were very attractive in

the shop and commanded a very ready sale. In many other structures, mostly under stages, of stoves, and intermediate houses, large quantities of Victoria roots were placed for succession and were brought forward by the 100 for market. These roots were placed close together, and often without any covering gave excellent returns. The watering from the plants, which were mostly in small pots crowded on the wide stages, supplied the moisture, so that no labour, except gathering the Rhubarb and taking them in and out, was expended. In vineries, Pine pits, Gardenia structures, or any other space with a few vacant lights did duty for Rhubarb forcing, and in the extensive manure yards (where great quantities of stable manure was carted from the West-end mews) was a receptacle for Rhubarb roots. A frame placed over them, where they were merely pushed close together, and a covering of manure thrown over, soon started the dormant crowns. To say which did best under such rough and ready treatment was almost an impossibility, but the earliest and deepest red in colour realised the most remunerative prices, but all was good. After the forcing was over the roots were carted back to the fields, where well-prepared ground was ready to receive them. Many were reduced, and when all were planted a good mulehng was given and Lettuce or some other quick-growing crop planted between the rows, enough space being left clear of the litter for the early summer crops. The same roots were not generally forced the following year.

That great establishment was long since cleared away and no trace of the acres of glass now remains, and though I was a boy when employed there, every contrivance to raise supplies (for Covent Garden) of the great variety of esculents and flowers remain as distinctly on my memory now as then, and none more than the vast quantity of Rhubarb forced, such as would give abundance to hundreds of private establishments.—M. TEMPLE, *Corrhouse*.

THE BEST ROSES.

BEFORE the critics swoop down upon me will you allow me to correct a very great omission which has occurred in Mr. B. R. Cant's paper in the "Rosarian's Year Book." How it occurred I cannot say. I cannot blame the printer, and so must bear the burden, and cry *Peccavi*. The following ten Roses were omitted from the list:—2, Edouard Morren; 5, François Michelin; 3, Louis Van Houtte; 3, Marie Rady; 5, Marie Baumann; 3, Merveille de Lyon; 1, Hippolyte Flandrin; 1, Madame Hippolyte Jamain; 5, Marquise de Castellane; 4, Innocente Pirola. The figures before each denote the number of times they were shown by Mr. Cant in the five collections which gained the champion trophy in the five years in which he won it. As I say, I cannot account for the omission of these names, and it was not discovered until after the book was printed.—D., *Deal*.

DEGENERATION OF THE CHAMPION POTATO.

"THE Champion," or Scottish Champion, has been a blessing to Ireland for several years past. When first introduced the growth was prodigious—stalks 6 and 7 feet high, in not particularly rich soils, and produce almost in proportion. During the partial distress in several parts of the country in 1881 hardly any other variety would be accepted by the authorities, but it was afterwards freely asserted that contractors imposed worthless or worn-out varieties instead of the ignorant. This gave this variety somewhat of a worse name than it deserved; but this year I am sorry to say, as a grower and close observer myself, and acquainted directly or indirectly with most of the island, the Champion has almost hopelessly degenerated. The crop in the majority of cases would not pay for the labour and manure, and I shall not plant it again, though only imported direct from Forfar, N.B., the year previous.

I shall only now make a few references to two questions, but in answering I hope some of your correspondents will amplify them. 1, Why did the Champion degenerate so rapidly? and 2, What variety do your readers propose for a general field crop to take its place? In asking the views of others I am free to give my own. 1, I presume the "degeneration" referred to will not be questioned. Assuming this, I think it has been very much owing to its precocity in this respect. It is not an early variety, nor even a second early one; yet I know no other, not even the well-known Ashleaf or "Eight Weeks," that commenced growth so soon. Even to-day I have some pits out in the field, and when the boulders of frozen clay are removed there are stalks several inches long. Indoors it is not quite so bad, but the result generally is that the first buds are always rubbed away, and it is only the second or third growths (much less robust than the first) that growers can depend on for the crop. I can understand an American variety raised in a different climate, and not ripening sufficiently here, degenerating, but this explanation will not suffice here, as this variety was raised in Great Britain. 2, As to the best successor or substitute. I like Cosmopolitan, but it is too early, and Magnum Bonum is not fit to use for general purposes until after March. Reading Hero has not come up during the past two years to expectations, but I will try it again. Beauty of Hebron is a fine cropper but too early, like Cosmopolitan. Scottish Queen I must try again before deciding this year.—W. J. MURPHY, *Clonmel*.



PEAT FOR ORCHIDS.

I HAVE always regarded peat that contains large quantities of the rhizomes of bracken as rather wasteful, and to entail in addition considerable labour in pulling it to pieces to remove them. There can be no question about the lasting properties of the fibre in these turves, for it is certainly more durable and lasts in good condition longer than the finer light fibre that is formed by grasses. I observe that it is recommended not to pull these sods to pieces to remove the rhizomes, but to cut the turves, leaving portions of the bracken in. This is a question of great importance, and I should much like to see the opinion of extensive Orchid growers on this matter. I have visited several Orchid-growing establishments, but do not remember ever observing peat being used with these rhizomes left in it. For my own part, when turning out Orchids and other plants, I have frequently noticed when it has been left in—sometimes only very small pieces—that a small fungus has been growing upon it, and in some instances it has spread through a good portion of the soil surrounding it. Only last year, when potting some Cattleyas, the soil about the roots of one plant was full of fungus, and I could find no trace of anything likely to cause it, only a few strong roots of bracken that had been placed in with lumps of peat when potting the plants two years previously. The opinion of others on this point will be both interesting and instructive.—WM. BARDNEY.

CALANTHES.

ACCORDING to the notes which have appeared in the Journal recently failures in Calanthe culture seem to be getting more prevalent, and I think your Sheffield correspondent has done good service in bringing the subject forward that it may be ventilated, and perhaps the cause found and a remedy applied. It seems it is not only in gardens about Sheffield where failures have occurred, but in other places. "W. K. W." tells us that in some gardens in that neighbourhood they were a great success this season. I do not think that locality has much to do with it. A few years ago I witnessed a complete failure with a batch of well-grown pseudo-bulbs in a garden in this neighbourhood, and where the gardener had a reputation for growing them well. Whether it is a disease or not I cannot say, but I cannot help thinking that the primary cause of the failure is due to an excess of water during the latter period of growth. The black spot appeared on the pseudo-bulbs on two plants out of a number that I have grown this season. Just about the time they finished swelling, as soon as it was detected, water was withheld, and very little was given after. The result was that they produced their flower-spikes in due time. Had I given them water enough to have kept the soil moist, my belief is that the spot would have spread.

It is not, perhaps, generally known that Calanthes will grow and do well in a soil consisting of little else but loam. The soil generally used is a mixture of peat, loam, and cow manure, which I have used myself previous to this season. Having an idea that they had a liking for loam I decided to pot them in it, which I did, selecting the fibrous part, adding a little silver sand, a few small pieces of charcoal, with a little coarse wood ashes. The loam was of first-rate quality. During the growing season I used a little fish potash manure two or three times mixed with the water. The result was fine pseudo-bulbs and very fine spikes of flowers. It is necessary to exercise great care in watering when they are potted in such soil, as it retains the moisture longer than a more porous compost. Having rather a large number of *C. vestita* I have found the sprays extremely useful for cutting, and when associated with scarlet flowers they are very pretty in the vases. I have enclosed three spikes simply to show their vigour and the number of flowers they bore when grown in the above-mentioned soil. I cannot agree with the suggestion of Mr. F. Debnam (page 586, vol. xiii.) respecting the want of air at the roots, or failure would have been inevitable with me this season, as mine were potted firmly and in heavy soil. Was it not more likely that those in pots had more water than those in baskets, or rather retained it longer, and thereby caused failure in one case and success in the other?—R. M., *Western County*.

[The spikes sent measured respectively 3 feet 8 inches, 2 feet 11 inches, and 2 feet 7 inches in length; were extremely vigorous; samples with large flowers, and had evidently liked the treatment accorded them.]

IN answer to your correspondent, Mr. F. Debnam, concerning his smallest pseudo-bulbs of Calanthes in pots refusing to develop their flowers under similar treatment to those grown in baskets, I cannot accept his explanation of the failure as arising from the want of a free circulation amongst the roots, by their being confined to the inside of pots. We find it necessary to treat Calanthes as terrestrial Orchids both in baskets and pots, and if pots are utilised a suitable compost will counterbalance their confinement. Having experienced the unfortunate results, my opinion leads me to think it is chiefly owing to excessive dryness at their roots during development. I have seen the two methods

practised, and have found the majority of advocates preferring the pot system, in which every requisite application of stimulants and top-dressings can be given with more discretion than to plants in baskets. I have both seen and practised the pot system, producing spikes of *C. Veitchi* over 4 feet in length, pseudo-bulbs from 12 to 15 inches in length, *C. vestita lutea* from 3 to 4 feet long. I am competent in stating the good results were obtained from clean pots and good drainage, and a good fibry compost of loam, peat, cow manure, charcoal, and sand, a good strong heat and plenty of atmospheric moisture, with the free use of the syringe. As growth strongly advances syringe very lightly, to prevent it running into their growths.

One correspondent finds his *Calanthes* to be affected with black spots both on the foliage and pseudo-bulbs. I am sorry to say we have the same disease here. I am told the plants have of late been placed in the conservatory when in flower for weeks, where with us the temperature falls very low during the nights of winter. I attribute the evil to over-watering, especially giving an excess of water to newly potted plants, and every precaution should be taken to treat their fleshy roots accordingly. —D. PHILLIPS, *Digswell Gardens*.

ORCHID ENEMIES.

WHERE are we to look for our enemies? Having been a cultivator of Orchids for more than twenty years I thought I had become fairly

coloured forms of *L. anceps* that are so useful at this time of year this variety appears to excellent advantage.

SOME GOOD VEGETABLES OF 1886.

(Continued from page 577, last vol.)

THERE is a great likeness amongst many of the varieties of Onions, and they differ in name only. No one who has grown thirty or forty sorts can fail to be convinced of this, and to give satisfaction well selected varieties should be grown. Webb's Banbury for instance may resemble several types of the White Spanish Onion, but it has been selected with such great care that we have not found any summer Onion of its type to excel it in the quality of its finely formed bulbs. It begins to bulb in May, attains a good size by July, and becomes a huge Onion by September. We use it from June until February, and then Bedfordshire Champion and James's Keeping come in, as these are still the best of our keeping Onions. Rousham Park Hero is a fine Onion when well grown, but unless under special culture no one could say it was distinct from the ordinary White Spanish varieties. Giant Zittau is a noble Onion, but it is rather slow in growth. If sown



Fig. 7.—*LÆLIA ANCEPS VIRGINALIS*.

acquainted with all kinds of pests that infest plants and Orchid houses. Being puzzled a few weeks ago to account for two snails I found quietly feeding on a plant of *Oncidium Jonesianum* on a block suspended from a rafter of the house by a copper wire. I think the other day the mystery was solved by observing suspended and descending from the roof by a slender slimy attachment a snail about 2 inches long, of a slaty grey colour, and about a foot from the glass. This to me is entirely new, never before having seen or heard anything of the kind. Will some kind horticulturist or naturalist better acquainted with these formidable enemies to Orchid roots and flower spikes say if this method of attack is unknown or not? I have long accustomed myself to hunt at night by the aid of lamplight among the pots and moss, but never thought it necessary to examine the roof. —S. EYRE, *Leek*.

LÆLIA ANCEPS VIRGINALIS.

THE varieties of *Lælia* are now very numerous, but that recently certificated at South Kensington under the above name is a handsome addition to those already known. It was sent from Mr. F. A. Philbrick's choice collection of Orchids at Oldfield, Bickley, and is remarkable for the great size of the flowers, which are 5 inches across, the petals being nearly 1½ inch across, of great substance, and pure white. The lip is broad with a yellow throat. In contrast with the richly

in spring with the others it will not gain maturity until late in September, but if sown in the autumn and transplanted in spring it will form bulbs by the following August of the greatest excellence. It is one of our favourite varieties, and in our estimation is first-rate. Trebons was a fine Onion at one time, but it has become so much mixed of late years that it has been very disappointing. We have had seed from several quarters, and in each case the bulbs were a mixture of colours, including red, white, and a pale yellow. In consequence of this it has been given up in favour of Cranston's Excelsior, which is a conical Onion of the same form, very handsome, and a fine straw colour. This is the best conical-shaped Onion we have grown. The Sandy Prize is a good Onion of the Banbury type. The White Mammoth is useful for a first crop. In the spring of 1886 a friend in Spain sent a packet of Onion seed saved from bulbs which weighed 3 lbs., but although every attention was given to their culture here the variety proved quite a failure, and is not included amongst the good vegetables which come under this heading. The New Queen is a very quick grower, and the Blood Red is the strongest in flavour. Magnum Bonum is a form of Trebons, and

the Giant Rocca is the best of this section, but being flat in form and very often mixed in colour we prefer Giant Zittau and the Excelsior for autumn sowing. The general aim is to secure very large Onions, but excepting for exhibition they are not so useful as those of a medium or small size, and the latter are always the best for keeping.

New varieties of Parsnips are not plentiful, and no one appears to attempt to produce fresh ones, and it is probably well known that it would be a difficult matter to equal The Student and Hollow Crown as standard varieties. The Turnip-rooted Parsnip is not so much grown as it should be in shallow soils or in gardens where the soils cannot be turned up to any great depth, and it is not so apt to rust in late autumn or winter as the deep-rooting sorts. Good garnishing Parsley is always in demand, and the most beautiful and useful variety we have tried is Carter's Fern-leaved. The old variety known as Myatt's is the next best.

In coming to Peas we reach one of the most important sections of all summer vegetables. New ones are offered to the public in large numbers, the majority of which are not improvements on preceding sorts, but with so many new ones to select from there are some of high merit, and amongst early varieties Carter's Lightning is the earliest by several days of any we have tried. Sutton's Royal Jubilee is another new one of the highest merit. It is now being offered for the first time, but we had the pleasure of trying an advance packet in 1886. It is an enormous cropper, the pods are the largest of all, they fill freely, and the flavour is first-rate. It has a constitution which resists drought and mildew to a wonderful extent, and amongst a batch of twenty-four varieties it was the last to cease bearing. Wordsley Wonder is a prodigious cropper, excellent in quality, and a first-rate main crop variety; Veitch's Prodigy is another with distinct qualities of the highest order; Messrs. Carter's Telegraph, Telephone, Stratagem, and Pride of the Market are not superseded as reliable main crop sorts; Duke of Albany is a wrinkled Telegraph, and Sutton's Latest of All is the best late variety; Ne Plus Ultra is still grown in some gardens and it is very good in quality; Veitch's Perfection is another old sort which has not been wholly discarded.

Wood's Early Frame is our earliest Radish, and Carter's new Knickerbocker is the largest variety. It is a new one of promise and would be a grand one for market purposes. The Holborn Crimson Marble is excellent for summer and autumn use, and the China Rose is the best of all for standing the winter in the open air.

Savoys merit special attention, but they are often sown too early, and many of them are over before the severe winter weather sets in, which is a mistake, as they are a true hard-weather vegetable. The Drumhead is too coarse; Green Globe is better, and Webb's Little Wonder is better still, as it grows so compactly and is of excellent quality. It is a decided improvement on Little Pixie, Tom Thumb, or King Koffee, and for a gentleman's table or an amateur's garden it is recommended. Salsafy and Scorzoneria are only represented by one variety in each section. The Round Spinach for summer and the Prickly for winter are the only good and leading sorts.

Turnips are being improved annually, and those which were regarded as being the earliest a few years ago are now far behind. The Extra Early Milan is the earliest of them, a fortnight before any other sort. Then comes Sutton's Early Snowball, tender, juicy, and handsome, followed by Veitch's Red Globe, which may still be grown as a valuable main crop sort; Chirk Castle is exceedingly hardy, and so is Orange Jelly. The Swedish variety is also most useful from now until April.

Of Tomatoes we have grown upwards of fifty sorts, and the trial of them was one of the most interesting we ever conducted, but the varieties we grow for profit are not numerous. Webb's Sensation is very fine. It is a most abundant bearer of large finely formed fruit of superb quality. Hackwood Park is another grand sort, and Sutton's Reading Perfection is of the same type, all being much in advance of any known a few years ago. The Chiswick Red is much smaller in fruit, but exceedingly productive, and Carter's Greengage is not surpassed in flavour. We have given up the Stamfordian as being a shy fruiter and unprofitable. President Garfield is too coarse. Red Currant is only ornamental. Of Vegetable Marrows we only grow one, and that is the free-fruited, high quality variety recently introduced under the appropriate name of Pen-y-byd.—A KITCHEN GARDENER.

P.S.—I am not surprised that the vendors of Cauliflower Eclipse should have a good word to say for it. Veitch's Autumn Giant requires no defence, and I think King of the Cauliflowers will hold its own when generally cultivated.—A. K. G.

TABLE PLANTS.

ON page 587, last vol., Mr. C. Orchard contributes a useful article under the above heading, and also gives a list of plants suitable for

table and room decoration. I do not think the list complete without a few more which he has omitted, and which, with your permission, I will mention.

In Crotons the two most handsome and best suited to the purpose that I am acquainted with are *C. Johannis* and *C. Warreni*. The first when well coloured is very graceful. I have plants of it as yellow as gold, scarcely any green at all in them; it is much brighter than either *C. angustifolius* or *Chelsoni*. *C. Warreni* is larger and heavier, but when placed on the centre of a large table it is very effective. Now is a very good time to take the tops off such plants as are too tall, and if placed in a strong bottom heat in the propagating case they will root quickly, and in a few months will make good plants again. Having rather a large demand for table plants I take care of the old stumps, as they soon break again and make two or three growths, which are taken off when strong enough and rooted.

Draenas rank next to Crotons, and the narrow-leaved are preferable to the broad-leaved varieties. Those mentioned by your correspondent are good, but I think *D. Willsi* stands unique. It has a splendid arching habit, only the margins of the leaves being coloured but very bright; it looks quite majestic. *Nigra rubra* is a good companion to it. Ringing the stem with a knife and mossing it is the best means of propagation. The stumps may be taken care of for the same purpose as the Crotons. The stems when cut up are a long time making plants. Palms cannot be despised for decorative purposes, and in addition to those mentioned by Mr. Orchard, *Phoenix rupicola* and *Dæmonorops fissus* may be named. The former is a long time before its real beauty is developed. To those part of whose duty it is to produce handsome table plants I would say, include the above-mentioned, and they will be sure to please.

I may say that I have taken first honours several times in succession at shows where the competition has been keen, and the above-named have figured prominently amongst them.—R. M.

FORCING FRUIT.

THE forcing season has now commenced, and the head gardeners' anxiety has increased, therefore at the present time all young gardeners should try their utmost to do their work to the best of their ability, for by so doing they will not only help their superior greatly, but themselves in more ways than one, as I am sure any head gardener would encourage his assistants when he sees they are doing their utmost to help him at this critical time.

In the first place, ventilating is a very important point which should be thoroughly understood, for many a young gardener loses the confidence which his chief would have placed in him otherwise by not being able to keep the temperature of a house near the mark. Anyone in charge of houses should always keep a sharp look out as to the weather, for at this time of the year it is very changeable; and many a bright day succeeds a dull cold morning, but as a rule it is easy to guess in the morning what the weather is to be for the day, therefore the man in charge should employ fire accordingly. Often when the temperature of a house is rather low in the morning and the pipes not very warm, the young gardener raises the fires quickly and gets the pipes very hot, taking no notice of the weather outside as long as he raises the temperature inside, and then when the sun appears he finds that he cannot keep the heat down unless air is admitted very freely, which is detrimental to plants at this time of the year. If the morning is frosty, followed by a bright day, it is advisable not to have the pipes very hot, but have them warm and wait for the sun to raise the temperature to the required point; it is advisable to admit air early in the morning and not wait until the temperature is up. By so doing a steady heat can be maintained through the day with only a little air until the afternoon, when the house should be closed with good heat both by fire and sun for an hour or so, when slight ventilation may be afforded.

Many gardeners do not believe in night ventilation, but I think it is beneficial in all fruit houses, especially for Strawberries. Speaking of Strawberries, perhaps a few remarks might be useful to beginners and amateurs. In some cases where Strawberry forcing is carried on to a large extent they have houses on purpose for them, so when once in their places there is no shifting them about; then the house can be maintained at the right temperature with ease, but in most places the Strawberries have to be forced on shelves at the back of vineries and Peach houses. When first brought in from their winter quarters they should have all decayed leaves removed and their drainage looked to. The pots must be washed. Where convenient it is greatly to the advantage of the plants to place saucers filled with good loam with a dash of Beeson's manure in it under the pots, and it will be found the roots will soon find their way into it; but great care must be taken not to shift the plants from the saucers when required to remove them to other quarters. Watering is one of the chief points in Strawberry growing. The plants must never suffer by want of water, but at the same time great care may be taken not to make the soil sour.

At first the temperature should be 40° to 45° by night and 50° to

55° on dull days, raising it to 65° or 70° by sun heat, and syringe overhead on all bright afternoons. When the trusses commence appearing the temperature should be risen 5°. At this stage a sharp look out must be kept for green fly, which is very troublesome. As soon as detected the house must be fumigated for two or three successive nights, taking care that the soil is perfectly dry before commencing.

In some cases early forced Strawberries are bad to set, but I have always succeeded in securing a good crop by carefully dusting the blooms as they opened with a camel-hair pencil at midday and a very slight syringing on very bright afternoons. As soon as sufficient fruit is set thin to about twelve good fruits to a plant, and syringe on bright days until the fruits begin colouring. Some varieties are very subject to mildew, especially that excellent old variety Black Prince, which is admirably adapted for early forcing, being easy to set and of excellent flavour. As soon as the first signs of mildew show, syringe with milk and sulphur, which will soon cure the malady.

La Grosse Sucreé is an excellent variety for early forcing, splendid fruit for size and colour, but only second-rate for flavour. Vicomtesse Hericart de Thury is another excellent variety with splendid fruits of first-rate quality. But when forced early it is very shy in throwing up its trusses. The flowers can scarcely be seen above the foliage. Therefore, to allow the sun to get at them it is necessary to pick the middle lobe of each leaf out, and in some cases the whole leaf may be taken out when young. President and Sir Harry, two other well-known varieties of first-rate quality, are well adapted for second early or late use.

If fruits are not required before March the plants need not be placed in heat until the beginning of December, but if wanted earlier they should be started accordingly. In concluding, I will pass a few more remarks about watering and give a little advice to young gardeners who have charge of them. Examine the plants very carefully every morning, watering only those that are dry, and by no means water any plants that can go without until the next morning. Liquid manure may be supplied, but if the plants are placed on saucers filled with loam and Beeson's manure as I have advised, liquid manure is not necessary. I have grown equally as good Strawberries when supplied with clear water as when liquid manure was used.—E. COLLINS.

PRIMULAS AT READING.

THE striking success achieved by Messrs. Sutton & Sons at the last meeting of the Royal Horticultural Society in securing six first-class certificates for as many varieties is sufficient justification for giving a short description of their Primulas at home. Having recently had the privilege of inspecting the plants at Reading I am not able to justly characterise them otherwise than as magnificent, and I have no doubt those who saw them in London will admit their commanding excellence both in respect to variety and culture. The plants, which are grown in a series of low span-roofed houses, are remarkable for their sturdiness, symmetry, and vigour, each apparently a counterpart of the other, those of the several varieties appearing as if cast in a mould. They are grown in 5-inch pots, and it is very evident that from the moment of germination till the present time they have not been permitted to sustain a check from any cause to arrest their growth, for if they had been overcrowded when small, cramped at the roots in their early stages, scorched in summer, or saturated in autumn, such plants could not have been produced from seed sown in May and June. Those exhibited in London were all raised from June-sown seeds, and no one who saw them could question their excellence.

Turning to the varieties, Ruby King maintains its position as the king of its own peculiar colour. The opening flowers were, it was observed, somewhat pale, but as they attain maturity they assume a richer hue. Many are 2 inches across, and they are borne with great freedom, while the habit of the plant is perfection. Reading Scarlet is a fine representative of the brilliant scarlet section, being most showy in colour and exceedingly free. These are a brace of very popular red Primulas. They have a white companion that is well worthy of them in Pearl, which has a large and beautiful flower. Two other exceptionally fine single forms may be noticed—namely, Reading Blue and Reading Pink. The former has the most distinct blue tint of any I have met with, and is fairly floriferous; while the latter is of a beautiful salmon-pink hue and blooms most profusely. Several double varieties are particularly noteworthy. Sutton's Double White is very fine, having large, pure white double and semi-double flowers that are borne in the greatest profusion. The value of this Primula for cutting should render it much sought after. Double Scarlet, Double Rose, and Double Carmine, the colours of all of which are indicated by their names, are large and free-flowering forms, admirably representative of their class. The last-named is exceptionally rich in colour. A novelty that should attract much attention is a double blue, which has a somewhat similar hue to the single blue, and bears large double and semi-double flowers. These are great acquisitions. The Fern-leaved Primulas at Reading bear the same stamp of excellence as the others mentioned, the most noteworthy of them being, perhaps, the variety named Snowdrift, which

blooms in wonderful profusion throughout the winter. The flowers are pure white, and the large head of bloom renders the name particularly appropriate. Sutton's White Fern-leaved is a fine selection of this popular form. The singularly chaste flowers, which have large yellow eyes, are 2 inches across, and the habit of the plant is perfection. Rosy Queen is of a beautiful salmon rose hue and is wonderfully free. Two novelties in this class are a single and a double blue variety, both of good colour. The former blooms very freely, and both will doubtless be much sought after when they are offered to the public. A beautiful lilac variety has also yet to be introduced. It is one of the best varieties grown. Messrs. Sutton have now added an ornamental foliage section to their already large collection. One of these—Gipsy Queen—is very distinct, having very dark foliage with purple stems, and bearing white flowers, which, however, are spotted with pink as they develop. Moss-curved White has bright green curled Parsley-like foliage and white flowers, and Moss-curved Lilac resembles it in habit, but the edges of its leaves have a bronzy hue, and the flowers are lilac. A leaf and a flower of either of these varieties form a charming buttonhole.

The condition of all the plants at Reading evokes great admiration. The majority are specimens a foot across, with broad healthy foliage and bold heads of bloom—such plants in fact as can only be produced by skilled cultivators.

As may be imagined, the seed distribution departments of the firm in its spacious warehouses are now working at high pressure, but the magnitude of the trade that is now being carried on can be demonstrated only by ocular evidence. A courteous member of the firm, whose business education at home has been ripened by a sojourn amongst the immense flower, vegetable, and grass seed farms of Germany and France, conducted me over the premises, and exposed the colossal nature of the trade that is done by an important British seed house. The buildings cover several acres of ground, and now, with the order season just commencing, they are packed with seeds from floor to ceiling, activity prevailing everywhere. The resources of this vast establishment are really wonderful, and the manner in which it is conducted is a striking example of business aptitude and enterprise.—A VISITOR.

A PEA CONFERENCE.

WHILE scanning almost every seed catalogue with more or less interest, the thought which has suggested itself to my mind the last season or two is whether this important vegetable has not reached a standard of merit and popularity sufficient to make it worthy of an effort to have something in the shape of a Pea conference. We have had fruit congresses, and surely in these times a special display of Peas would not be out of place. It may be thought there is not now time to prepare, but this should not prove a stumblingblock, as little or no seed is yet sown. Others, however, far more competent, and also the trade, may offer sound opinions, and whether its centre should be north or south.—E. BURTON, *Kirkby Lonsdale*.

STRAY NOTES.

As all will, who have to do with horticultural hot water in a natural and not figuratively unpleasant sense, I have been interested in the question of water in furnace ashpits. One of the contributors to the discussion, Mr. Burton, is so near a neighbour that I have had opportunities of seeing the water plan in action under his supervision, and practically it works and has long worked well. The fire bars, especially where the steam has caught them, look particularly clean, and if not bright as a housemaid might count brightness, they seem not only free from corrosion, but as though hardened with a steely surface as if the vapour that passed over them were charged with some antiseptic agent. The fire burned clearly with an unimpeded draught, and the clinkers, as they neared the bars, seemed to crumble and fall quietly away instead of forming a party of obstruction in the process of combustion.

I particularly noticed the freedom from ash dust and sulphurous fumes, which is always pleasant, and I think safe in cases where the furnace may be under the same roof as the potting shed, where valuable compost material lies. Soil is so absorptive that I do not think I would trust, say Orchid peat long stored, in an atmosphere that pretty often smelt of sulphur; nor would I care for a whiff of these fumes to pass in with anyone who entered a range of houses by a back door opening into the potting shed and boiler house. A watery grave for ashes obviates all this, and it is better to renew a few furnace bars, even if they were prematurely eaten away, than to replace some valuable plants that might mysteriously sicken or die. My own "mileage" of pipes is not great, and the boiler that heats them is heated in turn by a "tortoise" furnace. Perhaps these larger sizes might be dignified as "turtles." Its horticultural want is a small ashpit, but still I contrive that all ashes when removed drop into water, and I have found the cultural advantage in the stoppage of dust and fumes.

Sunflowers, all head and no body. I would note a very ingenious and effective arrangement by Mr. Burton of big Sun-

flowers, all size and no height to speak of. The effect of large discs at from 12 to 18 inches from the ground was very striking. They looked all head and no body, like the "demons" in a pantomime, and I found that the plants had been raised in pots in a cool house, and afterwards planted out in line. They were laid flat and pegged down at their full length, along part of which further roots were afterwards emitted. The main heads turned short up and when these suns were set there was a long succession of moons and stars from the side shoots.—F. D. HORNER, *Burton-in-Lonsdale*.

MUSCAT GRAPES SHRIVELLING

ANYTHING that can help to keep Muscat Grapes from shrivelling is most important to all growers of that grand variety. I have seen a fine crop, beautifully coloured, wood well ripened, and foliage everything that could be desired, begin to shrivel in October, and though they were not allowed to hang long enough to shrivel seriously; had they been wanted to keep till February or March—as they can be kept when all things are right—I fear they would have shrivelled considerably. In this case I think the shrivelling was caused by stopping the application of water both to the roots and about the paths, &c., too soon. The danger of damping has to be combated, and moisture should be withheld from Muscats at the end of September and in October when the weather is dull and damp, but in bright dry weather moisture should not be entirely withheld. It is extremely disappointing to see Muscats which are well finished in every way, and which are looked to to afford a supply for the dessert table in February or March, begin to shrivel in autumn, and in nine cases out of ten dryness is the cause.

Where Muscats are grown amongst other late varieties, and perhaps not afforded that amount of light and heat that they need to bring them to perfection, little surprise need be felt when they show early signs of shrivelling; but when all conditions have been favourable to perfect ripening, it is felt that something else must be blamed when they shrivel prematurely. Exposing the bunches to the full blaze of the sun, though calculated to deepen the golden hue of the berries, is also likely to assist in shrivelling them.

I prefer a fair amount of foliage retained as long as it will remain on, and gradually removed when showing signs of decay, plenty of air, and at the same time more moisture, both at the root and in the atmosphere, than is commonly given. No other white Grape can compare with Muscat of Alexandria when well grown and kept under conditions favourable to it. When November is entered on it may, as a rule, be said that all moisture should be withheld; but even then, should the house be a very dry one, the situation exposed, and the weather dry and sunny—as we do sometimes have it even in dark November—I should be inclined to give a little moisture, but great care would be required to be exercised in so doing.—S.

AT last the mystery is solved—at least, so we are informed by Mr. W. Iggulden—and without fully committing myself to all he states, I consider the thanks of Muscat growers should be recorded in his favour. With my Grapes shrivelling did not take place where I should have expected it—on the top shoulders of the bunches, but at the lower portion of the bunch. I have a few of these bunches still in hand, and though not so rash as to say that they are improved by keeping, I can say, after five weeks' cutting, the deterioration is very slight, and I shall now hope to find these few faulty bunches as good at the end of another five weeks. In a previous article I called the attention of your readers to the fact of my largest bunches, which bunches were produced on young rods, as being the first to shrivel. I have now to record another fact to support this theory—unripe wood. Last week I was called in to look at a few Alicante Grapes hanging on the Vines. The bunches, the smallest ones on old rods, were perfect, just right for keeping; on the same Vine on young rods, where the largest bunches were hanging, not one of these was fit to keep, being shrivelled and their beauty gone. This only tells us that it is the ripe wood that must grow the keeping Grape.

Without doubt I shall keep Mr. Iggulden's theory as to damping well in mind another season, though I do not think this is the only cause of shrivelling. For instance, at one end of my little Muscat house some bunches growing over an open tank at the warmest end were perfect and are so now. Then, again, at the opposite end over another tank are bunches which very early gave signs of shrivelling. These two examples do not agree. I cannot at this date speak positively, but as I am always afraid of red spider, we damp freely, even using troughs, but whether I reduced damp too soon I cannot now say.

As Lady Downe's is one of the first to shrivel it is now an open question as to the same cause producing this. I am positive my Muscats had sufficient water at the roots. In the case, however, of Lady Downe's, I fancy they might have done with a little more. Unsettled, changeable, and sunless days sometimes keep me from being too free with water, as I do not like at colouring time to have a very moist atmosphere when closing the house. To supply water and have a very damp atmosphere, then for the sun to suddenly appear, is a certain cause of cracked berries. With me both in span and lean-to's my greatest damage occurred at the middle of the rods. I am inclined to think that, other conditions being favourable, the larger the house the less fear of shrivelling. Then, again, the greater distance Vines are trained from the glass the better.

I was very pleased to see that Mr. Pratt still so nobly upholds the fame of the Longleat Vines. I shall never forget the sight myself. I remember Muscats being grown in very narrow upright houses—houses that get hot very quickly and cool quickly. Last summer to save the foliage shading had to be resorted to, with the results that only a few are fit for keeping. I can well understand at late autumn, when looking more for ripening of both fruit and wood, that the water supply or atmospheric damping being somewhat neglected, especially after our very late summer. Some of my best Muscats were only cut last week on account of foliage still hanging. This is contrary to the record of Mr. Gibson. I have never yet found that early finished Muscats keep so well as the later ones. At the date of writing the contrast is very striking, highly coloured early fruit not comparing so favourably as the later ripened ones. How they will stand in March I know not.—STEPHEN CASTLE, *West Lynn*.

THE ROYAL JUBILEE AND THE ROYAL HORTICULTURAL SOCIETY.

I WISH to say, as a British gardener, how much I appreciate the remarks on raising funds to provide a home for the Royal Horticultural Society, under the above heading at page 25. The Society has become entangled in difficulties through no fault of the Council or any of the Fellows. I believe the suggested scheme may be practically worked out. The sum of £10,000 may seem a large amount to collect in a few months, but it is really not so when we consider the large area over which subscriptions would be spread—the whole of Great Britain and Ireland. Every gardener with a spark of loyalty to his Sovereign and devotion to his profession ought to subscribe something to provide suitable headquarters for such a Society as this. In fact, it is borne in upon me that the gardeners will do it if they are approached in the right way. They can place a circular in the hands of their employers, urging at the same time the importance of the work. They can subscribe themselves and collect a few sixpences and shillings from the under gardeners. Further, there are always some well-to-do amateurs who manage their own gardens in the neighbourhood who come to the gardener for advice. These gentlemen "pick the brains" of the professionals unmercifully and gratuitously. Here would be a golden opportunity for such to identify themselves with a work that would be held in everlasting remembrance.

The subject having been opened in the pages of the Journal, let it be discussed fairly as its merits deserve. I, for my part, would think it a great honour to have a share in such a work. "We have all so many calls upon us, especially at this season." It is the old story, you know. I remember some years ago taking the responsibility to find a sum of money for a school, and amongst others called upon an old gentleman who could well afford a guinea. He began, as usual, to enumerate all and sundry calls upon his purse; but my time was precious, so I had to cut him short with, "Yes, yes; I know you have; but you must give me £5 for this purpose, as I have so many calls to make." That he would not; he would give a guinea, but not a farthing more. It was all I wanted and as much as I expected. I am sure we will be called upon, we gardeners, to collect for this building, and the above is given as a hint to collectors. Give what you can afford yourself, and do not give up with the first refusal.

Many gardeners could give to such a purpose as this if they were more prudent. More than twenty-five years ago a most intelligent gardener told me that his wages were £50 a year, and that he spent £20 of it on whiskey. I asked him if the whiskey did him any good. "No," he said, "it does me a great deal of harm; but I like a dram, and I dinna drink it a' mysel'." I would like to say here, if I may be allowed, that half the young gardeners who started well with me have failed through being too fond of the "whusky." I have not failed exactly, having only had one head gardener's place, and I have not tasted "whuskey" for twenty-five years. If this fund is started I will subscribe my guinea to it and ask the young gardeners under me to help.—F. R. H. S.

WOULD it not be possible for the Royal Horticultural Society to join hands with Kew and hold the Scientific, Floral, and Fruit and Vegetable Committees at the Royal Gardens, which are within easy distance of London, and could no doubt find room for all the meetings, the Fruit Committees being held at Chiswick from May to December? The Horticultural Society possesses an invaluable establishment at Chiswick, and it seems almost in the natural fitness of things that the two gardens should be associated. The Lindley Library would also be well lodged at Kew.

Why should not all the metropolitan and provincial flower, fruit, and vegetable shows be organised, regulated, and managed by an association of nurserymen and seedsmen of the United Kingdom through a committee? London now offers buildings well adapted for the metropolitan shows, and the provinces are well able to provide equal advantages. The Royal Horticultural Society would then become purely scientific and practical.—T. FRANCIS RIVERS.

WATERTIGHT ASHPITS.—FIRE BARS—COMBUSTION

THE omissions which Mr. Burton notes in the articles of others also characterise his own writings. Progress is his object; it is also mine and we may advance a step if he supplies us with information about the

size of the boiler in which the fire bars have lasted for four years. To arrive at a true estimate of the lasting properties of the bars over hot vapour we must know how many feet of 4-inch piping the boiler is capable of heating, and the number of feet actually attached to it. Then, again, it is important that we should know the temperature of the houses that are heated by this particular boiler, or the special purposes for which they are used; then we shall be able to form a reliable opinion of the intensity of the heat to which the fire bars have been subjected during the time they have been in use, the size of the bar being also important.

On page 540, last vol., Mr. Burton proves nothing in reference to oxidation by his illustration of polished iron, steel, or a new horseshoe. But he confirms, in a very marked degree, the repulsion between iron and water that I pointed out in your issue for December 9th, page 526. Red-hot iron repels water completely. This repulsion has been proved to exist, and therefore his heated piece of metal, dipped in water and returned to the fire, is not affected. I maintain that after the process of dipping in water this piece of iron will not rust if it is kept in a certain temperature, and the air surrounding it is perfectly dry; but if stood in a corner and allowed to become cooler than the atmosphere it will condense moisture, and thus oxidation will take place. This is the reason one rusts and the other does not. But inactivity and exposure will not result in the destruction of cast iron half so quickly as can be accomplished when in daily use. Take a cast-iron 4-inch pipe, perfectly new, and lay it outside, place mains in a trench well built, and keep them hot day and night, but allow the pipes to draw moisture in the form of vapour from a tank or other source, and oxidation will be most rapid: thus they will be rusted in one-third the time the one exposed to the atmosphere.

Whatever may be urged in favour of watertight ashpits and the preservation of the bars by the vapour, or the reverse, the fact still remains that tubular water bars are in the end the cheapest and most durable. They can be fixed to most boilers, especially the saddle and its improved forms, and if they are what they should be when erected they will last as long as the boiler. They also add enormously to the power of the boiler. Those who had the pleasure of seeing the hollow bars working separately in Sefton Park only a few years ago will know what they are capable of doing. If I remember rightly "Thinker" alluded to them in his notes some time ago; if so, and he saw them, he can bear out what I say. Another advantage is, that any material can be burnt on these bars, for they are so arranged much wider apart than ordinary bars, that a large volume of air can be admitted to aid combustion. This reminds me of Mr. Stephen Castle's notes, which I was pleased to see, and in which there is more than appears in a casual glance. Not only does he keep the bars cool by the greater distance between them, but he insures more perfect combustion.

An artificial blast of either hot or cold air applied to our furnaces is impracticable. It is well known that a blast of hot air is used with immense advantage in the smelting of iron and other similar industries. For furnaces in use in gardens air can only be admitted by a natural process, and I feel convinced that in many instances not half sufficient is admitted to aid or insure perfect combustion. This is largely borne out by the remarks of "Alhion," page 387, which have been previously overlooked. His fuel would not burn, and now that he has achieved that end he lays the whole credit to the vapour that rises from the water in his ashpits. He has now the exact quantity of oxygen to insure combustion, and even less is required, since he burns a mixture of coke and anthracite, than would be needed to insure perfect combustion when the last was used alone. I maintain that the same end would have been accomplished if more air had been admitted to the furnace, it would have supplied the requisite quantity of oxygen.

I have tried anthracite for fuel, and found it very difficult to burn, for when fresh supplies were thrown on to a hot fire it broke into small particles owing to its slow conducting power. This quickly stops the draught or prevents the entrance of sufficient air to insure combustion; no doubt this is the secret of "Alhion's" failure. To prevent this, vapour of water has been recommended, but from experiments tried in America this process results in corrosion, due to the presence of muriate and sulphate of ammonia. It would be interesting to know if this is the case with all kinds of anthracite coal, or whether the same effect takes place when other kinds of coal are burned with the aid of moisture. Hood states that the activity of these salts are increased by moisture, and that he found coke burned with moisture also produced the same results. This is an important matter that must be duly considered in estimating the value of vapour in aiding combustion; for although a double supply of oxygen is afforded by its agency, and therefore less air is required to insure combustion, if corrosion results with certain kinds of fuel, or those obtained from certain localities, then the vapour process as a general principle falls to the ground.

This is a problem that your scientific readers are perhaps able to solve; it will at least do for "Thinker" to think about. When I asked his opinion about the hot v. cold water an easy way was selected of passing an opinion by agreeing with somebody else. But he differed, nevertheless, inasmuch as he preferred the hot rather than the cold water. If the advantages of hot vapour were so great without corresponding disadvantages I am surprised that the system has not become more general instead of passing into furnaces such enormous quantities of air—hot or cold, as the case may be—by artificial means. There can be no doubt that a blast of hot air adds materially to the intensity of the fire and increases the rapidity of combustion. When it is considered that the air must at the least attain the boiling point of mercury before it supports combustion,

and by others considered to be 800° or 900° Fahr., it will readily be perceived that a blast of hot air would prove more beneficial than one of cold, for by the blast it would lower the temperature of the solid matter of the fuel and its gaseous products in being heated.

If I read rightly, Mr. Burton conveys the idea that a great saving in fuel results from a blast of hot air, and therefore a strong point in favour of hot vapour from watertight ashpits. As a blast of hot air cannot be used in gardens, I shall dispense with it, for a very similar difference would result from the burning of coal and coke in an ordinary furnace such as we have in gardens. The accuracy of the statement I do not question, but it may mislead some, for it lacks detail. Coal cannot be burnt without an enormous loss, for when good average coal is carefully coked the residue will produce as much heat as the original quantity of coal would have done. When coal is carefully made into coke there is a loss of 38 per cent. The loss in the burning of coal is enormous when 62 tons of coke will produce as much heat as 100 tons of coal. Gas or retort coke is considered 12½ per cent. inferior to "oven coke." But in spite of this it has proved to be the cheapest fuel that I have used. I have tried here many kinds, and from the gas coke I can get the greatest heat for the least money. It will thus be seen that, independent of the blast of hot air, that much of the difference in Mr. Burton's figures between coal and coke is due to the great loss that takes place in the burning of coal. It appears to me to be impossible to burn coal in our garden furnaces without a very great loss; in fact our methods of combustion are far from perfect, not only in gardens, but I think I am within the mark when I say in all cases in which coal is used for fuel.

It seems to be claimed that less draught is required in the chimney by the aid of the vapour than would be required without it. No hard-and-fast line in this matter can be laid down, for the regulation of the damper in the chimney must be guided largely by the material that is used for fuel. For instance, supposing small coal was used in one case (this is very general) and gas or oven-coke in another, would not the first need greater attention, more draught in the chimney, and more air admitted through the fire bars than would be required to insure combustion in the latter, the vapour being used in both instances? Again, with many flued saddles a damper in the chimney is unnecessary, the draught being entirely regulated by the ashpit and furnace doors. In burning many kinds of fuel air must be passed over the material as well as under it by the ashpit if waste is to be prevented as much as possible, and thorough combustion insured. At the same time I do not believe in admitting cold air to strike directly upon the boiler, and thus lower its temperature.—WM. BARDNEY.

P.S.—The above was written before the Journal appeared in which "Thinker" places a construction on the sentence to which he takes exception that was never intended. What I mean is, that I shall not go to the labour and expense of making the ashpits here watertight until the advocates of this system prove more conclusively than they have yet done that the preservation of the bars are insured by their hot vapour system. Some trouble has been taken to prove that it aids combustion, which I have not disputed; but there are disadvantages even in this, and it is questionable whether the advantages are greater than the evils that may result therefrom. When the arguments are sufficiently strong to prove that the bars are preserved by hot vapour, then I will construct one of my ashpits to hold water, and test the matter by the side of thin bars such as has been described. They will also be put further apart to admit more air, by which means they can be kept cool. At present I have more faith in the last than the hot vapour system. If I am not mistaken, where blasts of hot air are employed some care is taken to prevent the air from imbibing moisture. I will just ask "Thinker" to tell us why a fire burns more brightly on a cold or a frosty night than it does on a dull, damp, or foggy night? We may then move a step further in the vapour theory.—W. B.

MAIZE AND PHYLLOXERA.

It is announced from Austria—and what a fortunate chance if it should be true—that means have been found, at once economical and sure of combating the phylloxera with success. Three large Vine-growers of that country, in whose vineyards the phylloxera had commenced its ravages, remarked that some Vines near which some Maize had been planted had not been visited by the dreaded pest, although a little further away some exactly similar Vines, growing in the same ground, perished rapidly. The idea in consequence occurred to them to plant some Maize in the contaminated portions, which was done, with the excellent result that the phylloxera abandoned the neighbouring Vines. This fact is explained, it appears, not by the disappearance of the offensive insect, but by the marked preference which it accords to the Maize, owing to the substance of the latter being more tender. The Maize, then, is an expiatory victim, being eaten instead of the Vine. The means indicated are, it is said, to be applied to all parts of Croatia, a region where the Maize grows well, and where the phylloxera is very destructive. It would seem that the plan is worth trying by Vine-growers in all countries where the Maize will grow.—(*Le Courrier de l'Europe*.)

RYTON MUSCAT AND GENERAL DE LA MARMORA GRAPES.

THE Ryton Muscat was given to my father many years since by Mr. Devenish of Weymouth, an amateur Grape-grower of great skill and experience. The gift was accompanied by the remark, "Mr. Rivers

there is a fortune in this Grape." My father was never very sanguine in fortunes being made by fruits, more especially when the prediction was made by an amateur, but he was enthusiastic about Grapes, and he was very willing to test the merits of this particular variety. The Ryton Muscat was planted in a vinery with the ordinary Muscat of Alexandria. The excellence of the Grape consists, as pointed out by Mr. Devenish, in its precocity. It will ripen much earlier than the Muscat of Alexandria in the same temperature, and might bring its fruit to perfection in a very hot summer without any artificial heat. The fruit differs in no respect from the Muscat of Alexandria in appearance, but early maturity imparts a superiority in flavour often noticed by those who have tasted the two Grapes at the same period of the year. The absence of any notices of this Grape probably arises from the fact that many changes often take place in an establishment before a Grape Vine bears fruit, and thus the distinctive name is lost. To an ordinary observer there would be no apparent difference, and the precocity would be attributed to the accident of soil or the position of the house. As far as this nursery is concerned the advantage, if any, possessed by the Ryton Muscat has been given to the public, as it has never been distributed as a new Grape at a high price, the remarks in the catalogue setting forth its true character for the benefit of those who are disposed to believe in the description.

Mr. Devenish was one of the first discoverers of the superiority of the Gros Colman as a late keeping Grape. My father looked upon this as a large black fruit of indifferent flavour, and not any better than the Barbarossa. Mr. Devenish advised him to keep it until April, and sent him a bunch of large size and excellent quality in this month. The great popularity which the Grape has since attained has fully justified this opinion.

The General de la Marmora, received from M. Vibert of Angers, was planted in a ground vinery, in which it grew and ripened its fruit for some years, but by an unlucky mistake the "accursed spade" of a labourer killed the Vine. The fruit so closely resembles Buckland Sweetwater as to be almost identical; the name, however, points to an earlier introduction, as the great Italian General de la Marmora was famous in 1849, and, if I remember rightly, the Buckland Sweetwater was not brought into notice till some years after that date. Under the ground vinery the fruit of the General de la Marmora did not attain the bright amber of the Buckland Sweetwater when grown in a vinery, but it was remarkable for its fertility, size, flavour, and hardness, the difference of colour arising possibly from the different conditions of growth. I have not planted it in a vinery, for Grapes are marketable commodities, and this variety, though valuable in a private garden, would not bring a remunerative price in Covent Garden. The Grapes Gros Colman, Gros Maroc, General de la Marmora, and Long Noir d'Espagne, or Trentham Black, were all received from M. Vibert of Angers. The latter was sent by my father to Mr. Fleming of Trentham Gardens, who thought so highly of it that he proposed the substitution of Trentham Black for the Long Noir d'Espagne as being easier to pronounce and more distinctive.

A "Scot" does not appear to believe the description which I have given in a catalogue for which I am responsible, and I do not write the above account to induce him to plant the Grapes, but simply to tell what I know of them.—T. FRANCIS RIVERS.

NEW PLANTS OF 1886.

(Continued from page 28.)

Inf., Inflorescence.—*L.*, Leaves.—*Fl.*, Flowers.—*Fr.*, Fruit.—*H.*, Hardy.—*H.H.*, Half-hardy.—*G.*, Greenhouse.—*S.*, Stove.—*Per.*, Perennial.—*Str.*, Shrub.—*In.*, Inches.—*Lin.*, Line = One-twelfth of an inch.—*Ft.*, Foot or Feet.—*Diam.*, Diameter.—*Pet.*, Petals.—*Sp.*, Sepals.

N.B.—Unless specified, all Orchids may be considered to be stove epiphytes.

ALOCASIA LINDENI. (*Ill. H.*, pl. 603.) A handsome and distinct S. Aroid, with ivory white petioles, and cordate acuminate l., of a bright green, with distinct yellowish midrib and primary veins. Peduncles 3 to 4 in. long, ivory white. Spathe convolute, pale green. Spadix included, cylindric; ovaries, small, scattered, numerous, pale green, rest of spadix white. Papua.

ALOCASIA SINUATA. (*G. C.* xxiv., p. 678; *Gfl.* 1886, p. 157.) S. foliage plant, with sagittate l., having sinuate margins, the upper side of young leaves is of a very dark green along the principal veins, with a lighter cheerful green between them, older l. are dark green, the under side is whitish-green. Peduncles about as long as the petioles or longer, light green. Spathe 3 in. long, entirely light green. Spadix shorter than the spathe, the rest white. Philippines.

ALOE HETERACANTHA. (*B. M.*, t. 6863.) Liliaceæ. G. A distinct Aloe, with a rosette of lanceolate acuminate l. 6 to 12 in. long, 1½ to 2½ in. broad, unarmed, or with a few teeth on the margins, and with 1 or 2 raised lines down the face. Fl.-stem branching. Spike elongating, dense. Fl. 1½ in. long, bright coral-red. Country unknown. Probably the same as A. inermis.

ANEMONE FANNINII. (*G. C.* xxv., p. 432, f. 84.) Ranunculaceæ. G. per. A very fine Anemone, with very large palmately lobed l., and a tall 2 to 3-flowered stem bearing handsome white fl. 2½ to 3 in. in diameter. Natal.

ANEMONE POLYANTHES. (*B. M.*, t. 6840.) H.H. or H. per., very attractive, and suitable for rockwork. L. on long petioles, 2 to 4 in. in diam., orbicular, lobed and toothed, cordate at the base. Peduncle stout, bearing a branching many-flowered umbel of pretty white fl. 1½ to 2 in. in diam., surrounded at the base by a leafy involucre of broadly cuneate, lobed and toothed, sessile l. Himalayas.

ANEMONE TRIFOLIA. (*B. M.*, t. 6846.) H. per herb, 6 to 10 in. high. L. all trifoliate, the radical ones on long stalks, those on the stems on

short stalks, in a whorl; leaflets lanceolate acuminate serrate. Fl. solitary erect, pedunculate, 1½ in. in diameter, white. Central and South Europe.

ANGRECEM APICULATUM, var. DORMANIANUM. (*G. C.* xxiv., p. 456.) Orchideæ. A small-flowered var., with vermilion-flaked ovaries, and vermilion tips to the sep.

ANGRECEM GLOBEATUM. (*G. C.* xxiv., p. 678.) L. narrow, bi-lobed. Fl. white, numerous, in a compact head, sweet scented, in structure like those of *A. claudetinum*, but the lip is less open, and the spur straight and parallel to the smooth white ovary.

ANSELLIA CONGOENSIS. (*Ill. H.* 1886, p. 143; *Cat. C. C. d'H.*, p. 2.) Orchideæ. A handsome plant, very similar to that cultivated as *A. africana*, but more floriferous. The fl. are produced in racemes, with erect, not spreading, pedicels; the sep. and pet. are similar, light greenish-yellow, with dark purple-brown spots; the lip has whitish side lobes, veined with purple and a narrow yellow front lobe; the two keels on the disk almost vanish before reaching the middle of the front lobe. Congo.

ANTHURIUM CARNEUM. (*Gfl.* 1886, p. 246.) Araceæ. S. per. A hybrid between *A. Andreanum* and *A. nymphaeifolium*, with fine cordate spathes of a bright red colour. It is probably the same as *A. Reine des Belges* of the *Ill. H.*, t. 588. Garden hybrid.

ANTHURIUM CHANTRIERI. (*Gfl.* 1886, p. 246.) S. A hybrid between *A. nymphaeifolium* and *A. subsignatum*, with large deltoid-cordate pointed l., and large white cordate spathes, but not very freely produced. Garden hybrid.

ANTHURIUM CHELSEIENSE. (*G. C.* xxiv., p. 650; *Bull. Cat.*, p. 7 and 5, with fig.; *Gfl.*, 1886, p. 157.) S. hybrid between *A. Veitchii* and *A. Andreanum*, of ornamental character. The l. resemble those of *A. Veitchii*, but are more ovate, and have fewer and less arched veins. The spathe is broadly cordate, cuspidate at the apex 3½ to 5 in. long, 2½ to 3½ in. broad, and of a rich crimson colour, smooth and glossy. Spadix yellowish at the apex at first, base part white. Garden hybrid.

ANTHURIUM CRUENTUM. (*R. H.*, 1886, p. 50.) S. A hybrid of the same origin as *A. Mortfontanense*, and like that plant, but with blood-red spathes. Syn. *A. Andreanum*, var. *roseum*. Garden hybrid.

ANTHURIUM FLAVIDUM. (*G. C.* xxiv., p. 651; *Gfl.*, 1886, p. 157.) S. evergreen. A tall growing species, with cordate-ovate, acuminate l., 10 to 14 in. long; scape 5 to 6 in. long; spathe spreading, pale yellowish or yellowish-green, oblong, abruptly cuspidate; spadix 1½ to 3 in. long, sessile, pale violet-pink. Columbia.

ANTHURIUM FRÆBELII. (*Gfl.* 1886, p. 52.) A fine free-flowering hybrid between *A. Andreanum* and *A. ornatum*, with large cordate l., and large roundish-cordate spathes of bright deep carmine, with depressions as in *A. Andreanum*. Garden hybrid.

ANTHURIUM MOOREANUM. (*G. C.* xxvi., p. 230 and 497.) S. A hybrid between *A. crystallinum* and *A. subsignatum*, of no remarkable beauty. L. sub-hastate, a ft. long, on petioles 18 in. long. Peduncle as long as the petiole. Spathe 4 to 4½ in. long, linear-oblong, acuminate, purplish-green. Spadix 5 to 6 in. long, slightly tapering, olive-brown. Garden hybrid.

ANTHURIUM MORTFONTANENSE. (*R. H.* 1885, p. 282, and 1886, p. 50 and 156, with plates.) S. An ornamental hybrid between *A. Andreanum* and *A. Veitchii*, with elongate, cordate-ovate l., and large cordate crimson spathes, with whitish spadices. *A. leodiense* is probably synonymous with this. Garden hybrid.

ANTHURIUM SCHERTZERIANUM, var. LACTEUM. (*Ill. H.*, pl. 607.) S. A fine white-spathed form of this beautiful Aroid.

ANTHURIUM SUBULATUM. (*G. C.* xxvi., p. 230.) S. A distinct and rather ornamental species, with a short caulex; dark green, elongate, cordate-ovate l., cuspidate-acuminate at the apex; a peduncle 9 to 12 in. long, bearing a stout purple-red spadix, and a spreading oblong white spathe, ending in a long subulate point. Columbia.

ANTHURIUM VEITCHII, var. ACUMINATUM. (*G. C.* xxiv., p. 650; *Gfl.* 1886, p. 147.) S. A var. with ovate-lanceolate acuminate l. Columbia.

APHELANDRA MACEDOIANA. (*Ill. H.*, t. 583; *Cat. Comp. Cont. d'Hort.*, p. 6.) Acanthaceæ. S. per. A handsome foliage plant, very dwarf, with horizontally spreading, elliptic-oblong, acute l., of a dark green above, with the nerves picked out in whitish green, violet-purple beneath. Brazil.

APONOGETON DISTACHYON, var. ROSEUS. (*R. H.* 1885, p. 503.) Nidaceæ. H.H. aquatic. A charming variety, with rosy tinted fl.

ARISTOLOCHIA LONGIFOLIA. (*B. M.*, t. 6384.) Aristolochiaceæ. S. An interesting species, with short woody rootstock, long climbing stems, long linear-lanceolate acuminate l., and good sized purple-brown fl., the tube being yellowish, with dull purplish veins outside, and is abruptly bent upon itself; the limb is roundish, about 2½ in. in diameter, and has the lower part bent up as if pinched in the middle. Hong Kong.

ARISTOLOCHIA RIDICULA. (*G. C.* xxvi., p. 360 and 361, f. 73.) S. climber. A very distinct and remarkable plant, with very odd-looking flowers. Stem, petioles, pedicels, and outside of the fl. covered with long spreading hairs. L. bright green, orbicular or orbicular-reniform, cordate at base, covered with short hairs. Fl. 3½ to 4½ in. long; the tube bent upon itself, the basal part inflated, dull whitish, with purple-brown veins; the limb is shortly revolute, and prolonged from the upper part of the sides into two long lobes, reminding one of donkey's ears; they are tawny (or perhaps cream colour), covered with dark purple-brown dendritic markings, and sparsely clothed with clavate purple-brown hairs. Brazil.

ARMENIACA. See PRUNUS.

BARBERIA ELEGANS, var. NOBILIOR. (*G. C.* xxv., p. 234.) Orchideæ. A fine, large-flowered variety, with a black-purple spot on the lip.

BARBERIA VANNERIANA. (*G. C.* xxiv., p. 678.) A fine plant, with flowers equal to those of *B. Lindleyana*, of a fine rosy-purple colour, with a small whitish disk on the rounded acute lip.

BEGONIA AMELIE. (*R. H.* 1885, p. 512, f. 89-90.) Begoniaceæ. G. A hybrid between *B. Branti* and *B. Roerli*, of robust, compact, branching habit. L. obliquely cordate-ovate, crenulate, shining green. Fl. bright rose in terminal trichotomous cymes. Garden hybrid.

BEGONIA COMPTA. (*Bull. Cat.*, p. 7.) S. A pretty species, with obliquely ovate angular l., of a satiny green, with a silvery tinge along the course of the midrib. Brazil.

BEGONIA DECORA. (*Bull. Cat.*, p. 7.) A shrubby decorative variety, with dark green obliquely lanceolate l., profusely dotted with silvery-grey, some- times those of *B. argyrostigma*, but the spots more minute. Brazil.

BEGONIA HOEGEANA. (*Gfl.* 1886, p. 398.) G. Something in the way of *B. nitida*; very glabrous, with a climbing stem, and broadly ovate l., rounded at the base, and scarcely oblique. The white fl. are in axillary lax cymes, and only half as large as those of *B. nitida*. Mexico.

BEGONIA MARTIANA, var. RACEMIFLORA. (*R. H.* 1886, p. 202.) G. A useful decorative variety, of bushy habit, with red stems, and darker fl. than in *B. Martiana*. Garden variety.

BEGONIA SEMPERFLORENS, var. STURZII. (*Gfl.*, t. 1220.) G. A fine floriferous variety, with cymose panicles of rose-pink fl., and having the l. spotted with whitish.

BILLBERGIA ANDEGAVENSIS. (*R. H.* 1886, p. 309.) Bromeliaceæ. S. A hybrid between *B. thyrsoidea* and *B. Moreliana*, with broad, obtuse, pale-green l., and a mealy-white arching fl.-stem, with bright red bracts. The fl. have a spreading limb, with the tube and centre dark red, broadly bordered with violaceous-indigo. Garden hybrid.

BILLBERGIA CAPPEI. (*B. H.* 1885, p. 192.) S. A fine Bromeliad, remarkable for its numerous l., which are banded with white, and its panicles of blue fl. subtended by large bracts of a delicate rosy colour. Garden hybrid.

BILLBERGIA ENDERL. (*Gfl.*, t. 1217.) S. L. 12 to 16 in. long, $1\frac{1}{2}$ to 2 in. broad, ascending. Fl.-stem larger than the l., the sheaths and bracts bright coral-red. Spike short, few flowered, bracts bright coral-red, fl. $\frac{3}{4}$ in. long, blue. Brazil.

BILLBERGIA GLAZIOVIANA. (*Gfl.*, t. 1203.) S. Bromeliad, with a few broad ascending l., very concave on the face, and clasping each other at the basal part, spiny on the margins, blackish-green, marked with silvery zones beneath. Fl.-stem shorter than the l., with a short dense ovate-oblong spike of red fl., with white floccose bracts and calyces. Brazil.

BILLBERGIA WINDL. (*B. H.* 1885, p. 250.) A hybrid between *B. nutans* and *B. Baraquiniana*, no description given. Garden hybrid.

BILLBERGIA WORLEANA. (*B. H.* 1885, p. 249.) A graceful and ornamental hybrid between *B. nutans* and *B. Moreliana*, having the outer l. narrow, as in *B. nutans*, and the inner ones broader, as in *B. Moreliana*. The long, slender, arching fl.-stem is adorned with numerous rosy bracts, and bears about a dozen dark blue fl., the calyx being rosy and blue. Garden hybrid.

BIOTA PYRAMIDALIS, var. COMPACTA. (*R. H.* 1886, p. 34.) Coniferæ. H. A variety of compact narrow conical growth. Garden variety.

BISMARCKIA NOBILIS. (*Gfl.*, t. 1221.) Palmæ. S. An ornamental Palm, somewhat the aspect of a *Pritchardia*, the large l. being digitately divided into 8 to 10 long linear segments, and several drooping thread-like ones. Madagascar.

BORONIA HETEROPHYLLA, var. BREVIPES. (*B. M.*, t. 6845.) Rutaceæ. A pretty G., shr. with variable opposite l., sometimes simple and linear, sometimes pinnate, with 1 to 2 pairs of linear acute leaflets. Fl. 2 to 4 in a whorl, drooping, globose, bright red, $\frac{1}{4}$ in. in diam., on pedicels about $\frac{1}{8}$ in. long (in the typical form they are much longer). S.W. Australia.

BRASSIA ELEGANTULA. (*G. C.* xxiv, p. 616.) An elegant small-flowered species, with glaucous bulbs and leaves. Raceme 2 to 5-flowered; sep. spreading green, with brown bars. Lip oblong, apiculate, with two keels, hairy inside, white, with purple-brown dots in front of the calli. Mexico.

BRODIAEA GRANDIFLORA, var. WAREL. (*Gfl.* 1886, p. 116.) Liliaceæ. H.H. bulb. A beautiful variety, with lilac-rose fl. 3 in. long, and a fl.-stem 2 to 2½ ft. high. California.

BULBOPHYLLUM SAUROCEPHALUM. (*G. C.* xxvi, p. 262.) Orchideæ. A curious and interesting species, with 4 to 5 angled, one-leaved bulbs, and a thick, clavate, bright red rachis, loaded with odd-looking fl. Sep. light ochreous, with brown nerves. Pet. small, white, with reddish mid-line and borders. Lip ochreous, with a deep purple base. Philippine Islands.

(To be continued.)

GROS COLMAN GRAPE.

I AM sorry my remarks upon this Grape in the Journal of Jan. 6th (page 18) were not plain enough to enable Mr. Goodacre to understand them. With your leave I will endeavour to put the matter plainer this time. You reported the bunch as having sixty-eight berries and weighing 7 lbs. I doubted the accuracy of this report, and asked if a mistake had not occurred, either in weighing, or a printer's error, which might easily happen. I beg to ask Mr. Goodacre if he will kindly state if such was the correct weight of the bunch, and if he means a pound of 16 ozs.

I have spoken to many gardeners well versed in the weight of Grapes of this wonderful bunch, and all are of opinion that some mistake has occurred about its weight, thinking it almost impossible for sixty-eight berries of the size indicated to weigh 7 lbs. I think the same from my own experience, for though I did not weigh the berries, I saw as large as the Elvaston fruit, still I can humbly claim a little knowledge of the weight of Grapes, as I have passed about 2000 bunches through my hands in one day.

The few lines of your correspondent, Mr. Stephen Castle, on this subject are rather interesting. The berry he measured, fully 4 inches round, weighed only half an ounce. Granting Mr. Goodacre's Gros Colman an inch more in circumference, which would make fully 5 inches, and give them double the weight of Mr. Castle's, we find his sixty-eight berries would only weigh $4\frac{1}{4}$ lbs., whereas, according to report, they weighed 7 lbs.—D. B.

LIKE your correspondent, "D. B.," I admired the samples of the above Grape as shown by Mr. Goodacre in November last, as well as his other varieties, but cannot yet understand a bunch containing sixty-eight berries weighing 7 lbs. I have just weighed a small bunch containing about fifty berries. It scarcely weighed 2 lbs., and yet there is not such a wonderful difference in the size of those grown by myself and those exhibited by Mr. Goodacre at York in November last, for I happen to be the exhibitor referred to by Mr. Goodacre's foreman, and he says that

ours approach nearest the Elvaston berries than any others he has seen; so here I must leave the matter for readers to judge for themselves.

What a pity that this grand-looking Grape is not of first-class flavour! We should then soon see housefuls of it grown almost everywhere. I have it grafted on Lady Downe's, on which stock it does very well, but the character of the bunch is quite altered, and I think spoiled, being shorter and thicker, and not so handsome as when grown upon its own roots.—WM. JENKINS, *Aldin Grange, Durham.*

LONDON'S LESSER OPEN SPACES—THEIR TREES AND PLANTS.

NEW SERIES.—No. 1.

It is noteworthy that we may thank the lawyers for having kept intact till now some large open spaces in or near the heart of London city; but to a great extent these have been, and yet are unfortunately, reserved for the enjoyment of a few individuals. Granted that the public has usually the privilege of contemplating their trees and shrubs from the exterior of the ground, and this glimpse of greenery has, it may be, refreshed many a weary heart; but I trust some day soon the Public Gardens Association will be able to throw open these precincts to all persons who can behave decorously. Before the passing of a recent Act there was danger that most of them might be seized upon by builders sooner or later. Strangers to the metropolis who pass along the busy thoroughfare of Holborn could have no idea that within a bowshot there is a place so suggestive of quietude, almost of rurality, as is Lincoln's Inn Fields, though what once was fields is converted into an enclosed garden. A London space equalled by no other, exceeding even the famed Temple Gardens, for its extent is twelve acres, there is a tale that Inigo Jones planned it, making it just the size of one of the pyramids of Egypt; but in fact he only built some houses on the west side, others being gradually added. The central square was fields till 1735, a resort of vagrants and horse-breakers. Trees were planted about that date, but I doubt if there are any now left; yet it has an abundance of timber, perhaps overcrowded in some parts. Towards Holborn, north of this space was an ancient avenue of trees, referred to by Stuart writers, probably Elms. A small number of these are to be seen in Lincoln's Inn Fields, with a larger number of Limes and Planes and some Horse Chestnuts. There are some fine specimens of the Ash, a tree that does well in London. Of the Hawthorn there are a few fairly grown trees of the common species, one with a rather singular trunk, and some Birches, a tree too seldom planted about our gardens. Amongst the familiar shrubs the Elder, so much a favourite fifty years ago, is conspicuous, and showing leaves developed late in autumn. On the whole, this ground is rather deficient in evergreens, the oldest being some Hollies much besmoked. It would be an improvement to a square like this were a central mound or terrace formed.

A short distance to the east is the open space of Lincoln's Inn proper. This garden, much curtailed by the erection of the grand Hall and Library in 1843, had its shady avenues of trees two centuries ago or more, where the benchers and their friends sat or strolled. The centre is grass, and the beds are arranged in a trim old-fashioned style, having a sprinkling of shrubs, and with herbaceous species that will stand a London winter, amongst which are placed during the summer some of the usual bedding out plants, but annuals seldom succeed, as is the case in similar gardens. Here are some young Poplars; this is a tree that does well about London where the subsoil is suitable and the Goat caterpillar leaves it alone. Beyond this space is another to the north, being the garden of New Inn; here are some Elms and Planes, forming a sort of avenue, and along one side a shrubbery screened by a high wall, where lopping would be advantageous. We are looking, it may be remembered, upon what was once a rare place for fruit, these two spaces, with other land adjacent, being the garden of Lacy, Earl of Lincoln, in the reign of Edward I. and after. He succeeded so well that he was able to sell his fruit to the citizens, the quantity produced exceeding his own requirements most years. Apples, Pears, Filberts, and Cherries are specified, and he also raised vegetables, some of which are named; for instance, Beans, Onions, and Garlic, for our strong-stomached ancestors favoured the latter vegetable, and the old journal states that he grew Roses, perhaps other flowers.

Time was when from the gardens of Gray's Inn there was obtainable an extensive view of the uplands at Hampstead and Highgate. There seems to have been in the olden time a larger space than now with less restriction, since the walks of Gray's Inn are repeatedly mentioned as a common meeting place and promenade by old writers. "The pleasantest place about London," says a writer of 1621, and the great Lord Bacon is stated to have planted trees here, from which the present trees are, it may be, descendants. There are some good-sized Limes, Elms, and Planes. In the topmost branches of several of these yet remain the nests of a colony of rooks that for many years had their abode in Gray's Inn. The modern walks are skirted by grassy slopes, which might be diversified with advantage by occasional flower beds. In the circular enclosure of Furnival's Inn, close at hand, though the space is but small, it is made pleasing by beds of varying shapes and sizes which surround a central bed, these being filled with the usual flowers of summer during the season. After their removal in autumn, the gap is prevented by the introduction of evergreens of a particular size, which are taken up when the spring allows of a brighter display. This would not be a bad plan for adoption in other London spaces, the evergreens put in averaging about a foot in height, and from four to six kinds being placed in each bed according to size, the arrangement is matter of taste.

A narrow turning conducts us past a spot oddly called even yet "Jockey's Fields," though it has ceased to be a broad open space to Red Lion Square, which is also all that is left of the old Red Lion Fields, so named from a memorable Holborn tavern. It was a square long neglected; but it has recently been taken in hand and planted with additional shrubs. To some people this small plot has an interest, because a tradition exists that the body of Cromwell, after exposure, was buried in its centre. But when we recollect the square, as it now exists, was not formed till the beginning of the eighteenth century, this becomes valueless, as in 1660 it was a larger and an irregular open space. The square has one large and old tree, a Lime, not far from the middle, and there are pairs of Elms of moderate size on the north and south sides. The evergreens for the most part appear to be in an unhealthy state, even such usually thriving cockneys as the Privet, the Holly, and the Box languish. I wish to point out to the gardeners of these London spaces one reason why some plants and shrubs do not get on. The ground is often insufficiently dug from time to time, hence no proper drainage is possible, and scarcely any water goes below a certain depth, because the subsoil is hard and unabsorbent. I have several times watched the turning over of ground in London gardens, where at various depths there was a tough cake of a claylike substance, which neither rain nor roots penetrated. At least once a year the ground should be deeply though carefully dug. It is observable that in many London squares the soil contains but a small number of worms, which are so valuable as promoters of drainage, if they are a nuisance when they get into flower-pots.

Almost opposite Gray's Inn is Barnard's Inn, on the south side of Holborn, where the houses look into a central gravelled space of small size, but which contains a cluster of Limes, which in the summer season gives it the aspect of a little grove. When one of the occasional gleams of sunshine appear, which even London may get on a winter's day, hosts of sparrows gather here to chatter perhaps over the hardness of the times and the ferocity of the City cats. Far up some of the quaint old houses climbs the Virginian Creeper, festooning windows with its tangled stems, and, especially during autumn, giving a brightness to the dull brickwork.

To the west of us, where Drury Lane winds its course between the two great lines of thoroughfare, just as it did when a rural lane with two or three houses, large adjacent gardens, and a vineyard (Vinegar-yard—Vine-garden yard), and here the Public Gardens Association has done what it can to make pleasant the old churchyard of St. Martin's. The space is small, not a quarter of an acre; but a variety of shrubs have been planted, and some well thrive. Trees have wisely not been attempted.

CAMPANULA ROTUNDIFOLIA FLORE PLENO.

I HAVE had some correspondence with Mr. Lindsay, Curator, Edinburgh Botanic Gardens, and Mr. Burbidge, Curator, Trinity College Botanic Gardens, Dublin, and both say they never saw a double form of *Campanula rotundifolia*, but the latter gentleman, through whose advice I write these lines, says it is mentioned in "Johnson's Gardeners' Dictionary," on p. 166, under *Flore alba*—the white variety. Both the single blue type and the white variety are therein set down as British, but the blue double-flowered variety is thus referred to:—"Flore pleno (double-flowered), $\frac{1}{2}$, blue, July, Gardens."

It may be stated for the information of the readers of the *Journal of Horticulture*, that I found the above plant growing wild in Scotland a good number of years ago, but it was not till 1883, when along with a friend I began the study of botany, that I learned it was a rare plant, and had it removed at the first convenient chance I had to the garden, where it has been ever since, and made poor progress with the exception of last year, when it produced half a dozen spikes of bloom, which I procured some seed from.

I may add that the friend referred to was Mr. A. Honeyman, who contributed to the *Journal* under the *nom de plume* of "Single-handed," and whose seemingly premature death was a great loss to horticulture, for he was a most highly gifted man, and as Mr. Burbidge writes in one of his letters to me—"It seemed a thousand pities that one so young and highly gifted should have gone to the Elysian Fields so soon."

The flowers of this *Campanula* are what florists term hose-in-hose, and are not all double; on the same plant some with petaloid stamens, which means that there is a chance of improving what Nature has begun in the way of hybridisation.—JOHN THOMSON, *Bonnybridge*.

PINE APPLE CHARLOTTE ROTHSCHILD.

At the meeting of the Royal Horticultural Society on December 7th, 1886, Mr. Coomber, The Hendre Gardens, Monmouth, exhibited three fine Pine Apples, two of Smooth Cayenne and one of Charlotte Rothschild, a cultural commendation being awarded by the Fruit Committee for them. The fruit of the last-named variety was a particularly handsome one, beautifully proportioned, very even, 10 inches high and 6 inches in diameter at the base, and capitally ripened. A reduced illustration is given in fig. 8, and Mr. Coomber has obliged us with the following particulars of his mode of culture.

"Charlotte Rothschild Pine Apple is a valuable variety for autumn and winter use, and possesses the excellent quality of keeping for a considerable time after it is ripe, surpassing in this respect the Smooth Cayenne, and for which it is a suitable companion, requiring the same treatment and growing to a similar size. The fruit we exhibited with two Smooth Cayennes at South Kensington on December 9th, and for

which the Royal Horticultural Society awarded us a cultural certificate, when gathered weighed 9 lbs. 4 ozs., but had lost weight at that date through being kept.

"Our mode of culture is simple, and we have nothing new to divulge. I will give that of the fruit in question briefly as follows:—A batch of sturdy suckers was taken from old stools and placed in 8-inch pots in April, 1885. Being plunged in a brisk heat (a bed of decayed leaves with pipes beneath) they readily filled their pots with roots, when they were at once shifted into pots 12 inches in diameter, and firmly and finally replunged into a bed with a temperature of 85°, accompanied with the usual atmospheric conditions. After this they were sparingly supplied with tepid clear water until their roots had well permeated the fresh soil, from which time until they were rested (from the beginning of November until March) they were more liberally treated. During the resting period the atmospheric temperature varied, according to external conditions, from 55° to 60° at night, with a rise of about 5°



Fig. 8.—Pine Apple Charlotte Rothschild.

during the day, while the bottom heat was maintained at 75°. In March and April the heat was gradually raised until that in the bed reached 85°, and the atmosphere 70° at night, or a trifle more in mild weather, with the usual increase in the day; close attention forthwith at all times being paid to the indispensable daily duties, ventilating, syringing, shading, &c. A portion of the plants pushed up their fruits by the end of April; the remainder made growth previous to showing fruit, and these produced the finest, those exhibited being some of them.

"In potting we insure thorough drainage and ram the compost firmly, and this is as simple as are the other divisions of culture. It consists of light fibry loam incorporated with a moderate amount of soot. Crushed bones or Standen's manure are useful ingredients to mix in Pine soils, but we have, so far, been satisfied with results obtainable without them. Peruvian guano, dissolved in water and used regularly in a mild form throughout the growing season and occasionally in winter, is the stimulant we invariably depend upon to create vigorous growth."

INDIAN EXPERIENCES.

(Continued from page 18.)

To the young gardener fresh from England the free and easy character of a planter's life, and the absence of all restraint has, without doubt,

very great attractions, and unless he be in possession of a well balanced mind these attractions, in too many cases, become irresistible, and apt to make him forget the main object of his sojourn in a country like India. Time in plenty he is sure to have on his hands, and if part of this be given to the study of Nature as she appears in her Indian guise he will find in the planting districts of that country a field of labour inexhaustible in extent and unrivalled in its attractiveness. Such a country as that of Malabar cannot fail to have infinite charms for the naturalist. The grandeur of the forest scenery, the numerous curious forms of plant life, the tropical richness of leaf and flower, and, what is perhaps more wonderful still, the rapidity of tropical growth, are all calculated to arrest attention.

Sir Monier Williams, in his "Modern India," speaking of the Civil Service has the following:—"I believe that in no part of the world is so much work honestly and conscientiously done as by Her Majesty's servants in India. Even men of inferior energy and mental calibre, who in England would effect nothing, are, by the circumstances of their position, developed into vigorous officials and administrators." The truth of the above statement is apparent to all who have spent any time in India, and what Sir Monier Williams says of the civil servants of India would be equally true if applied to many Englishmen in India occupying more humble positions.

The flora of the Wynaad, as may be imagined, is exceedingly varied and interesting; but, as it is out of the province of these papers to give anything like a comprehensive description of it, I will content myself by referring to a few examples only. Orchidaceous plants abound on trees and rocks, numbers of which are uninteresting on account of their simple and insignificant flowers; but there exist also many species of such well known genera as *Dendrobium*, *Cœlogyne*, *Saccolabium*, *Orchis*, *Anacotylus*, &c. Palms, including *Calamus*; *Phoenix*, or Wild Date as it is called, and the young stem of which is edible and makes an excellent salad; *Areca*, *Caryota nrens*, &c. The latter, which is a very graceful and beautiful Palm in a wild state, is invariably found growing in small groups or colonies in the cooler parts of the jungle, and when in ripe fruit presents a very remarkable and picturesque appearance, surrounded by the deep green of the other forest trees. The young plants are remarkably handsome, and deserve more attention in England. They grow at an elevation of from 2500 to 3000 feet. The Cocoa-nut Palm is only found in a cultivated state, and is seldom if ever productive; in consequence, as some maintain, of the absence of salt in the soil, but more probably on account of too great an elevation. Amongst climbing plants may be named *Cissus discolor*, several beautiful species of *Bignonia*, *Hoya*, *Asparagus*, *Jasminum*, *Passiflora*, *Gloriosa superba*, and others. The last-named climber is found very abundantly in the Bamboo district, and seems to be very partial to the cultivated Coffee ground, often climbing its way up to the top of the Coffee trees, adorning them with its graceful stems and handsome flowers. This plant would seem to adapt itself to any elevation between sea level and 3000 feet. On the hot and burning plains of Tinnivelly I once saw quite a field of it in full flower, but it had abandoned its climbing or creeping form of growth, and the upright stems were not more than a foot long and covered with flowers. In Wynaad it blooms during the height of the south-west monsoon. A wild species of *Musa* flourishes on moist rocks on the cool Ghaut slopes, and is a very beautiful object. The ribs of the leaves are red and the plant dwarf and graceful, and unlike the cultivated sorts it seeds very freely. Several species of shrubby *Begonias* are found in similar situations to the former plant. *Tradescantias*, *Impatiens*, *Amaryllis*, and a host of other dwarf flowering plants are found in plenty all over the district; whilst a very pretty *Ageratum* is one of the worst weeds the Coffee plant has to contend with.

The genus *Ficus* has many and some very curious representatives in this portion of India, from the mighty Banyan down to small creeping forms hiding their slender stems and clusters of fruit amongst the withered leaves of the jungle. The Banyan, *Ficus indica*, although it seems to thrive, never at this elevation throws down roots from its branches to any great extent, nor forms such handsome specimens as is so often seen on the plains. *Ficus asperima* is a wonderful plant. Deciduous, and seldom growing to a greater height than 15 to 20 feet, and producing leaves, the upper sides of which are of such a rough nature as to have gained for it the name of the "Sandpaper Tree," and it is quite a common thing to see carpenters using the leaves as a substitute for the genuine sandpaper. *Ficus glomerata*, also a deciduous tree of about the same height, produces immense clusters of bright coloured and very tempting fruit all along its branches and stem about the size and shape of the ordinary Fig, but unfortunately unfit to eat. *Ficus religiosa*, perhaps the most interesting of the group, is also deciduous, but grows to a much greater height than the last-named species. It is considered by the Hindoos to be the most sacred tree of their country, and is planted close to almost every temple and carefully tended. It partakes somewhat of a parasitical nature, and is often seen growing out of the clefts and forks of large trees where little or no soil is found. The leaves are very similar in shape to the Aspen, and like it, are ever in motion. The legend is that the God Krishna, the Preserver, was born amongst its branches, and since that time the leaves quiver in adoration of the event. The bark of the tree is of a pale ashy colour, and altogether it is a very beautiful object. Other species forming trees of large girth and great height are also found in the district, and several of the *F. elastica* type.

The Cardamom plant, which is peculiar to the Ghaut forests of Malabar, deserves passing notice from the singular method adopted by the jungle tribes of natives in its cultivation and for other reasons. It is found only in open patches in the midst of the dense Ghaut jungles where

the rainfall is the heaviest and the climate coolest. Its cultivation by the jungle tribes above alluded to is thus undertaken: At the height of the dry season, when all moisture has vanished from the forest and the intolerable myriads of land leeches with it, a few men advance, axe in hand, into the forest until they come upon a suitable spot on the hillside bearing a group of larger trees than is to be found in the surrounding jungle. From three to four of these giants are felled, which crush in their fall a goodly number of other trees of smaller dimensions and saplings. As the trees fall down hill their mighty heads of branches are smashed and broken into innumerable fragments, rendering unnecessary any act of cutting or lopping. The trees are then left on the ground to decay. During the ensuing rainy season the seedling Cardamom plants appear above the ground without any previous act of sowing or planting on the part of the native cultivators whatever. The plants increase in size till the end of the third year, by which time they have developed into large clumps, frequently reaching a height of from 10 to 15 feet, when they produce their first crop. These patches are visited periodically during the growth of the plants, which are relieved from the encroachment of weeds and undergrowth, and this process comprises the sum total of the cultivation of the Cardamom plant, if, indeed, such a term be admissible. We can only fall back on the supposition that the seeds of the plant have lain in a dormant state, perchance for ages, in the soil of the darkened jungle, which the light of day but partially penetrates, awaiting the advent of the sun's rays to call them into life. In no other way, I think, can the appearance of the young plants under the circumstances described be accounted for. This phenomenon is by no means confined to this plant, nor to the moister and cooler portions of the district. Clearings for Coffee on Bamboo land are almost immediately after planting clad with a veritable carpet of seedlings of a species of *Ageratum* over their whole area, when not a single plant of the species can be found in a truly wild state for miles around. This fact, considering the nature of the climate and the annual jungle fires that sweep the country, is a very startling one. The flowering spikes of the Cardamom are produced from the base of the stems, and are totally hidden by decayed leaves and other vegetable matter, and never appear on the surface from their first period of growth till the ripening of the fruit, so that all the functions of the reproductive organs of the plant are performed in the dark. The operation of gathering the fruit begins about the beginning of October, and is a matter of some trouble and difficulty owing to the innumerable land leeches that infest the jungle at that time of year. Clothing is no protection to the body, the leeches in their small and hungry state finding their way to the body in a way which is frequently quite puzzling, and even tapping the blood through the thickest garments. Tobacco juice is frequently used to rub the limbs with before entering the jungle, and a pinch of gunpowder will at once make the leech leave its hold of the body. But the best preventive of leech bites I ever tried was carbolic soap. Rub this on the clothes or limbs, and no leech will venture an attack. No matter how quickly one passes through the jungle in the rainy season, he is sure to find hosts of these disgusting creatures clinging to his legs, and how they got there on so short a notice was, for a long time, a puzzle to me. I found on examination that the creatures are in countless numbers standing upright on the fallen leaves and twigs of the jungle ready waiting for their prey, so that when the feet come in contact with them there is no escape, and to attempt to stop to pick them off is only to make matters worse, as their place is at once supplied by hundreds more. Their bites are very troublesome to some people, sometimes festering to an alarming degree and producing fever.

After gathering, the Cardamoms require little further preparation before shipping to England than simply drying in the shade and picking from the stems and selecting, or, as it is called, garbling. If dried in the sun the capsules are apt to split, causing the seeds to escape. The right of gathering this condiment from the waste lands of Malabar is a Government monopoly, and the jungles are generally let out to responsible native collectors by the Conservator of Forests in charge of the district. In former times the right to collect any forest produce was common to all, and it might have been quite as creditable to the Government had they never interfered with this long-standing custom for the paltry annual sum derivable from such a source to assist the revenue of the country. By assuming this monopoly the Government deprived the poor and wretched jungle tribes of a privilege which had been theirs for generations. Other jungle produce in the shape of honey, wax, gums, tamarinds, myrabolams, &c., are also monopolised by the Government, and their collection is supervised by the forest officers, but the revenue from such sources cannot be very great.

Of timber trees there are many of great value, and in some instances of great dimensions, including the following:—*Dalbergia latifolia*, or the Blackwood of India, growing abundantly on the Bamboo land and ruthlessly burned in large quantities in clearing land for Coffee; *Terminalia*, several species; *Artocarpus integrifolia*, yielding a close-grained and beautiful yellow wood; *Mangifera indica*, a tree of large size, growing mostly on the banks of rivers, and when covered with ripe yellow fruit is a very beautiful object. The fruit, unlike that of the cultivated Mango, is not fit to be eaten.—PLANTER.

(To be continued).

EARLY FLOWERING CHRYSANTHEMUMS.

COMPETITORS with these plants were rather at a disadvantage at the Crystal Palace Show because we had to make a round group instead of with one face or with a back to show against. It will perhaps be well here to mention that for the future it will be very much better if we were

allowed to show in 16-size pots instead of being bound to 24's. This is likely to conduce to the welfare of the exhibition in seasons to come. At the National Chrysanthemum Society's early show there is no restriction, though it may be taken for granted that larger than 16-size would not be used. If these larger pots were had at the Crystal Palace some might show there who contemplated showing at the National Society's Show, the same plants in some cases doing double service. There is one little thing to mention in connection with this Crystal Palace Show, as I shall not here mention the new sorts we were able to put up for the first time. It was that on the second day of the exhibition Mr. Davis of Camberwell brought one flower of the new American variety Mrs. J. R. Pitcher. This I believe to have been the first flower shown in public in this country, and I put it on record because I think it will in years to come prove one of the grandest early Chrysanthemums ever grown. The next thing to notice is the first early show of the National Chrysanthemum Society at the Aquarium, Westminster, held on the 9th and 10th of September. It has been said that this was a fortnight too early, but I should rather say a week, or the middle of the month, not only for the season, but supposing the Palace Show to be held when it is, it would allow more rest for those concerned between the two shows, as well as be likely to permit other plants to come to perfection for the purpose. The grand feature of this show was the banks or groups of flowers, the first prize for which was justly given to Mr. Davis of Lilford Road, Camberwell, and I believe this was the finest bank of early flowering Chrysanthemums ever exhibited in this country. It contained plants of the new red sport of Lyon, Alice Butcher; plants of Mrs. J. R. Pitcher, which latter were the first plants shown in England. It also contained a plant in bloom of the new crimson William Holmes. This attracted much attention owing to its striking colour and large bloom. The second and third prizes went to Mr. Stevens of Putney, and Mr. Wright, gardener to the Inner Temple, both of whom put up grand banks of flowers, whose only failing was rather too much of Madame Desgrange. We want more colour, and should the new sort, William Holmes, prove early enough, it will fill the vacancy so obvious in the crimson line. It has again been repeated that these early sorts are not wanted, and I can only say that people do not generally buy what they do not want, and they buy these because they will do what no other flowers or plants will. In the open ground alone they will produce such masses of flowers with such little labour; moreover, they last in water more than double the time of many cut blooms, Dahlias, to wit, last no time thus; besides, for town and suburban growing I think they have no equals. It should be remembered, too, that such plants as Gladioli, &c., produce only one spike of flowers and are done, while the Chrysanthemum Flora will continue blooming for months. Where, too, are their equals for harvest festivals? All this some people know and others do not, hence these remarks.

At this Aquarium show Class 6 was for collections of cut Chrysanthemum flowers, and both Mr. Davis and myself considered that the main use of this class was to induce exhibitors to send as many varieties as possible to represent the condition and advance of this culture, and he exhibited by far the very best collection in this respect, showing twenty-four varieties with their names, of which ten were new, in fine state. I was able to show nineteen, of which nine were new. All these had their names attached. The first prize was given to a row of about one dozen blooms of Madame Desgrange, with a few bunches without names.

I will now try to do what I have done in former years—namely, to point out the new sorts of this season, and say a word or two on those not sufficiently developed of last season and of most merit. I am well aware that though so much has been written, many in trade, as well as others, do not really know the merits of the new varieties, or I should not receive the catalogues I do from promising establishments in which the poor old sorts figure where the new ones should have place instead. Last season's good opinion of Blushing Bride is fully borne out this. It is a fine thing. Piercy's Seedling is again just as good as its first season. Roi des Précoces is rather later, and on October 5th was not out. Jeanne Cousinié has surpassed itself. It is very good indeed, but not so robust as some. It is the colour of Madame Piccol, but a better flower and earlier. Toréador does not so much resemble Frederick Pelé as I thought last time. It is a downright good red, in many respects the very best red early Pomponé; it renders Pomponé Toulousain unnecessary. I regard it and my Mr. Piercy as the two best reds up to last season. I have come to the conclusion that Mignon is not Fibeta. It is better by not being so tall, easier to propagate, and earlier. I may mention here, too, that Salter's Early Blush is coming much into favour for large quantities of cut flowers, for where grown in the open garden in a rough way it does admirably.

Mrs. J. R. Pitcher.—Amongst the discoveries of this season I put as the first Mrs. J. R. Pitcher. This was sent to me last season by Mr. Thorpe, of the firm of Hallock, Son, & Thorpe, of Queen's, New York, U.S.A., but being packed in wooden boxes, they came so dried that they barely lived, and were a long time before they grew strongly, which they did at last, but when the end of the season arrived and no bloom appeared, I concluded they were late sorts, and gave them all away. Among others part was given to Mr. Ware of Hale Farm Nurseries, Tottenham, Essex, and upon a visit there on the 23rd of July it was in bloom. These plants were said to be spring-struck cuttings, and if that was so, then it is one of the early as well as best sorts. It grows about 3 or 4 feet high, with leaves a good like Madame Desgrange, of which it appears to be a seedling. The flower is a slight blush in the open, but a delicate white under glass. It is quite unlike Madame Desgrange in appearance, and is slightly incurved; very effective and

beautiful. Probably it will come to be as generally grown as Madame Desgrange.

Alice Butcher.—The second find of importance is Alice Butcher. This is a red sport, I call it, of Lyon. Mr. Davis, who brought it out, calls it Bronze. Purchasers can decide for themselves. It is in every respect like the original but the colour.

Pierre Verfiel is another new and capital bright red Pomponé blooming in September, the colour and flower much resembling Alice Butcher. Grows 27 inches high; flowers 2 inches across; very profuse bloomer. Will be very good for cut flowers. Better to propagate than Lyon or its sport.

Red Luxembourg.—This is a bright red sport of the old Mrs. Wood, but as that is now better known by its new name through its new yellow sport, we have given it the name as above for the purpose of its more easy recognition. I think it is very likely this will become one of the most favourite reds for florists' purposes as the colour is good. It is rather a deeper shade than Pierre Verfiel or Alice Butcher, and it is exceedingly robust, and good for rough culture and rapid propagation.

Golden Luxembourg.—A sport of Mrs. Wood, now wrongly called Luxembourg. Plant as good; robust in every way, and dwarf as the original, but having flowers of a bright yellow instead of dull bronze. This stands wet and bad weather well, and is good to cut in a wet state.

L'Ami Couderechet.—One of the most beautiful early Pomponés ever introduced. It is a very stout grower, about 20 inches high; flowers of a pale primrose colour, most profuse in quantity and good in quality; size 2 to 2½ inches across. Excellent grower; blooms in August.

Mlle. Léoni Lassali.—A very fine new ivory white, large-flowered, and particularly bushy plant; grows about 18 inches high. Will be admirable for a bedder. Blooms about 3 inches across. Begins to flower in July.

Blanch Columbe.—A very good new dwarf white, growing 18 inches to 2 feet high. The flowers are about 2½ inches across, with a very straight petal standing out like a star; very robust. Blooms in August.

Flocon de Neige.—There are two others of this name. One of the most beautiful and exquisitely white Pomponés ever seen. Grows about 18 inches high, and has flowers 1½ to 2 inches across. Blooms in July and August.

Sussex.—An English seedling. A good stout robust-growing white Pomponé with a pale yellow centre. Blooms in September; 16 inches high. Flowers 2 inches across; handsome foliage.

Hermine.—A white small Pomponé, very dwarf; 1 foot to 16 inches high; flowers 1½ to 2 inches across. Blooms in August.

Canari.—This is a very good and dwarf Pomponé of a yellow colour, like a canary bird. It very much resembles the new yellow sport of Petite Marie, but is very good to propagate, while Petite Marie is bad for that purpose. Canari has a flatter bloom, and is about 2 inches across. The plant grows 1 foot high. It is a little beauty.

Petitlant.—A stout-growing white Pomponé. Grows 2 feet high, and has flowers 2½ inches across with very stout thick petals; ivory white. Blooms in September.

L'Avenir.—A very good sort, growing 2 feet high, of very good habit, bearing flowers 2½ inches across the colour of Madame Piccol, than which it is a better plant to propagate, and of stronger constitution. Blooms in August.

Gentillesse.—This is a most profuse blooming Pomponé of a pink colour, growing about 3 feet high, and having flowers 1½ inch across. A good robust grower. Blooms in August. Old plants will bloom twice in the season.

Precocité Japonaise.—A very strange quaint-looking flower about 2½ to 3 inches across. The petals are a deep kind of pink at the base, shading off at the ends to nearly white. It is a good out-of-doors plant, about 3 feet high, and blooms in September.

Rose d'Été.—A new pink Pomponé with a small flower. Blooms in September.

E. G. Henderson et Son.—A plant of a poor thin habit with a poor thin flower. It is a yellow Japanese, and blooms at the end of September.

While I write to say what is good, I may as well speak of what to avoid. This is, it should be remembered, such a very different thing to the general idea and practice with Chrysanthemum growers that the judgment would generally go against such plants as I grow. We want for garden, decorative purposes, and masses of cut flowers, with branches and plenty of leaves as well as flowers; but we have to be often judged by the minds formed from exhibition plants, tall, with a few fine flowers at the top, and from which most of the buds have been picked. A weak plant will often grow good flowers that way, but such treatment is quite out of the question in the open garden, hence we want plants that are strong enough to perfect a large number of flowers. I have grown many plants commonly considered good, but when grown without disbudbing, were very poor indeed; not properly robust enough to stand the open air, far too tall to keep up, and not having the power to perfect all their buds into fair flowers.

I may here mention a variety which, though perhaps it ought hardly to be included in the early group, it may probably come earlier another time, it is Mons. Cossart, a fine strong plant with good stout flowers, large and very full, a kind of orange yellow, seems to bloom at the end of September, grows 3 to 4 feet high, blooms 3 to 4 inches across. *Precocité de Delaux.*—This, too, is barely early, not blooming till the end of September or beginning of October, but as this is its first season in England it may come earlier next time. It is a stout dwarf Pomponé, with

handsome foliage, growing about 3 feet high, and bearing a profusion of very bright crimson flowers about 2 inches across. I think this will prove very useful.

The following are early, but some of them are not, and some are old with new names. A. Villatte des Pruges and Madame Hoste, not early; W. E. Boyce, not so good as Isidore Feral, but much the same colour; G. Wrigley, Mons. Hoste, and Wm. Bealby, not early. Annita came out as old Madame Dufoy, the Jardin des Plantes of Parker, Reine Blanch is old La Vallée, Yellow Perfection is Flora, Madame Lebois is St. Mary (Souvenir d'un Ami), Chilou Chillard is a poor tall straggler and shy bloomer; Comtesse de Morney (there are others of this name), is late Commandant Rives, is a poor weak plant; Dame Blanch, not early, but a good white large flower; Gremillette is poor; General Duret is the same as Mons. Dufoy sent over last season with the new name Petit Mignon.

"We have this season had reports of two spots of Madame Desgrange, The first from Brighton called Mrs Burrell. I have seen flowers of this exhibited at the Crystal Palace and the Aquarium, Westminster, and a fine one sent direct to me, and I think that it is not a sport. We must bear in mind that the air of Brighton when not passed over the town, is charged with ozone from the sea. This would naturally bleach flowers and make them lighter as this is, and if at the same time we consider that these fine flowers are finished under glass it will wholly account for the primrose shade of this, and that if this should be grown inland and in the open air it will probably show no difference from the original. I will not pronounce for certain till next season, when I will try to grow it beside the parent. The second claimed to be darker, and came from Putney, but I can see no difference in it.—W. PIERCY, 89, West Road, Forest Hill, London, S.E.



WE are desired to state that until another Secretary is appointed to the UNITED HORTICULTURAL PROVIDENT AND BENEFIT SOCIETY all communications affecting the Society may be sent to the Treasurer, Mr. J. Hudson, The Gardens, Gunnersbury House, Acton, W. The annual meeting will be held on February 14th, at the Caledonian Hotel.

— THE appreciation of Mr. L. Castle's popular work on ORCHIDS is testified by the demand for a third edition. This excels all previous issues, twenty pages of fresh matter being added, including chapters on Orchid groups and specimens; Orchids for bouquets and floral decorations; pruning Orchids; Orchid sales; references given to works in which nearly 800 Orchids are figured; a directory of Orchid growers; and an interesting chapter on collecting Orchids by Mr. F. W. Burbidge. The price remains the same as before. The work combines excellence with cheapness, and is in every respect a creditable production, for which a ready sale may be anticipated. It is published at the office of this Journal.

— WE are desired to state that at the meeting of the CHISWICK GARDENERS' MUTUAL IMPROVEMENT SOCIETY on Friday evening, February 18th, Mr. Alexander Dean will give a lecture on "Character in Gardeners."

— A CORRESPONDENT writes:—"On all sides we hear of great DESTRUCTION TO CHOICE TREES, CONIFERS, AND SHRUBS, this being principally caused by the exceptionally heavy weight of snow that lodged on them on the night of December 27th. Rain fell first, then came a rapid fall of snow in large flakes, and these became frosted to the trees, rendering it impossible to shake it off with long poles. Where we tried the experiment more harm than good resulted, and many a good tree was disfigured in consequence of being weighted down with snow and ice. My object in writing, however, is to suggest that all limbs of trees badly damaged should be neatly sawn off near to the trunk, have the edges of the bark neatly rounded with a knife, and the wound then coated with cart-grease. This excludes air and water, renders the wound less unsightly, and greatly facilitates the healing."

— At the meeting of the HORTICULTURAL CLUB held last week at the rooms, 1, Henrietta Street, Covent Garden, the subject of conversation was as to how the Club could best assist the Royal Horticultural Society in the present crisis of its affairs, the crisis alluded to being the uncertainty of the tenure of the premises at South Kensington. There were

present the Hon. and Rev. J. T. Boscawen, Rev. H. H. D'Ombain, Rev. F. H. Gall, Dr. Masters, Dr. Hogg, Messrs. Harry J. Veitch, T. Francis Rivers, George Paul, George Deal, H. Herbst, George Prince, H. J. Pearson, Arnold Moss, A. H. Pearson, C. T. Drury, &c., &c. The opinion of the meeting was clearly that something ought to be done, and no definite proposal being made a committee was appointed to consider the matter, consisting of Mr. H. J. Veitch, Chairman; Mr. H. J. Pearson, Vice-Chairman; Dr. Masters, Messrs. Deal, Moss, A. H. Pearson, Rivers, Herbst, and Bull, with power to add to their number. We are informed that it has been arranged for the Committee to meet Sir Trevor Lawrence, the President of the Society on February 1st, some days prior to the annual meeting of the Society.

— A CORRESPONDENT states that "Twickenham has lost an old and respected inhabitant by the DEATH OF MR. R. LAING, florist, of Richmond Road. The deceased tradesman had been a resident of the town for many years, and was a member of the Twickenham Local Board for a considerable period. He resigned his seat upon the Board about eighteen months ago in consequence of failing health. He was a prominent committeeman of the Twickenham and Richmond Horticultural Societies, and was also a warm supporter of the Gardeners' Benevolent Institution. Mr. Laing was in his seventy-seventh year."

— MESSRS. JAMES CARTER & CO., High Holborn, had a very pleasing display of PRIMULAS AT THE WESTMINSTER AQUARIUM last week. They comprised a number of varieties, some of great merit, distinct in colour and of good form. Very notable were the following:—New Holborn Fern-leaf, with rich rosy flowers. In this variety, as in many of the Holborn strain, Messrs. Carter are getting back to old fringed and scalloped shaped flowers so much admired. Holborn Pearl is a delicately tinted variety, and received a first-class certificate. It is a cross between Holborn Blue and Holborn White, which in the first instance originated that lovely ivory white variety known as Elaine, and the second season the plants of Elaine threw the form designated in 1883 as Holborn Pearl. The chief amongst the other varieties were Holborn Vermilion, with vermillion red flowers of great beauty; Holborn White, elegantly fimbriated and pure white; Holborn Magenta, deep magenta red, a lovely colour; Holborn Venus, prettily striped crimson and scarlet; Holborn Purple, Holborn Salmon, Holborn Rose, a very delicate shade.

— MESSRS. H. CANNELL & SON have sent us from Swanley a representative collection of PRIMULAS. The varieties are not named, but are as good as if they were. The white and neutral-tinted flowers are 2½ inches in diameter, and the darks, which are rich in colour, average 2 inches across. All of them, moreover, possess great substance, indicative of superior cultivation.

— GARDENING APPOINTMENT.—Mr. James Ullock, for the last nine years general foreman in the gardens at Trafford Park, Patricroft, Manchester, has been appointed head gardener to Sir Richard Bulkeley, Bart, Baron Hill, Beaumaris, Anglesey.

— A NORTHERN AMATEUR writes as follows on THE WEATHER in SOUTH AND WEST PERTHSHIRE:—"During the past week the frost, ranging from 4° to 12°, has not been so intense as was previously registered. Brief partial thaws have occurred, and some of the lower grounds have been nearly cleared of snow. The roads in some districts have been for the last fortnight literally one thick sheet of ice. Trees and shrubs have been stripped of berries, and in many gardens Greens and other vegetables have been devoured by wood pigeons and pheasants. Deer have left the high grounds and are being fed by hand in the neighbourhood of the village of Callander. A bitterly cold wind from the east, with threatening snow, was blowing on the morning of 17th January."

— THE annual dinner of the SHEFFIELD AND WEST RIDING CHRYSANTHEMUM SOCIETY was held on Monday evening, January 10th, at the Clarence Hotel, High Street, Sheffield, the number present being about sixty. Mark Firth, Esq. (President of the Society), occupied the chair, and the vice-chair was filled by C. E. Jeffcock, Esq. (one of the Vice-Presidents). At the annual meeting and election of officers, held prior to the dinner, it was unanimously decided that the Society's next Show be held in the Sheffield Corn Exchange, on Friday and Saturday, November 18th and 19th. The proceedings at the dinner were throughout of a most enthusiastic and enjoyable character, some excellent songs and music alternating with the speeches and toasts. The report and balance sheet for the past year was read by the Hon. Sec. (Mr. W. K. Woodcock), and the general tenour of the speeches referring to the Society

was to the effect that it was fast rising in the estimation of the people of Sheffield, and has before it a very promising future. The President (M. Firth, Esq.) and two Vice-Presidents (C. E. Jeffcock, Esq., and A. Wilson, Esq.) each signified their intention of giving a sum of £5 to be awarded as the Committee may determine for special prizes in the schedule about to be prepared for the Society's next Show. It was also stated during the evening that the Committee intend offering a challenge cup in addition to the money prizes in the open class for forty-eight cut blooms, and that the Hon. Treasurer (Mr. H. Broomhead) has already received promises of subscriptions to a considerable amount towards the purchase of a cup.

— THE annual dinner of the subscribers and committee to the PORTSMOUTH CHRYSANTHEMUM SOCIETY took place at the Albany Hotel, Portsmouth, on Wednesday. The Mayor, W. D. King, Esq., took the chair, and Mr. Councillor F. Power, Hon. Sec., the vice-chair. About sixty sat down to dinner. In proposing the toasts, the Mayor proposed the "Queen, the Prince and Princess of Wales, and Royal Family." Mr. A. W. White proposed the "Mayor and Corporation," and said the Town could congratulate itself on having at the head of affairs a gentleman not only of ability, but one who threw his whole heart into his duties. Mr. Barnes proposed the "Subscribers," and said that he, Mr. Power, Mr. Ellis, Mr. Fulljames, talked over the forming of such a Society three years ago, and they collected £100 this last season. The funds were so good they gave a prize cup value £25, which Mr. E. Molyneux won the first time. On behalf of the Committee he thanked the subscribers. Alderman Baker replied, and spoke of the true pleasure flowers afforded to all classes of the community, and of the pleasure the Committee had been the means of giving to both rich and poor. Mr. J. Moody proposed the "Committee and Mr. F. Power." He spoke of the humble origin of the flower shows, which were started by Mr. Power, and of their grand growth, until they had arrived to their present success. He saw that this year they commenced with a balance of £42. Mr. Power replied, and said their great object next autumn was to get more money and to offer more prizes, and make it a regular Jubilee Show, and they could look forward to still greater success, especially as the horticultural papers had helped them. Mr. Power urged that their success was due to charging low prices, and they might depend upon it that by charging popular prices they would get the best support. Alderman G. E. Kent proposed the "Exhibition and Prizewinners." Mr. W. Drover of Fareham replied, and was sorry not to have met Mr. Molyneux here to have replied. He had been to most of the Chrysanthemum Shows this season, and if the Portsmouth Show goes on as it has done this three years it will not be second to any in the kingdom. The "Health of the Mayor" was proposed by Mr. Power. The Mayor responded, and wished every success to the next Show.

— AT a meeting of the ROYAL BOTANIC SOCIETY, held recently at their gardens in Regent's Park, Mr. J. P. Gassiot, Vice-President in the chair, the Secretary spoke of the great damage done to the trees and shrubs in the gardens by the heavy snow of December 26th, many large branches being wrenched completely off. Mr. G. J. Symons, F.R.S., said that so great a weight of snow had not fallen at any time during the last thirty years. The destruction caused by it he traced to its very great density, more approaching that of ice than snow, and to the fact of its having thawed while falling, so that it stuck fast to the branches instead of reaching the ground. A rapid thaw occurred early this week, and the snow has now nearly disappeared.

— MR. JOSEPH MALLENDER sends the following SUMMARY OF METEOROLOGICAL OBSERVATIONS AT HODSOCK PRIORY, WORKSOP, NOTTS, for December, 1886:—Mean temperature of month, 34.9°. Maximum on the 6th, 53.2°; minimum on the 18th, 17.4°. Maximum in sun on the 6th, 88.1°; minimum on the grass on the 18th, 10.3°. Mean temperature of the air at 9 A.M., 33.7°; mean temperature of the soil 1 foot deep, 37.3°. Number of nights below 32°—in shade 16, on grass 30. Total duration of sunshine in month sixty-one hours, or 26 per cent. of possible duration; six sunless days. Total rainfall 3.51 inches. Maximum fall in twenty-four hours on the 14th, 0.85 inch. Rain fell on fourteen days. Wind mostly from westerly points. Average velocity of wind 12.3 miles per hour. Velocity exceeded 400 miles on eight days, and fell short of 100 miles on two days. The coldest December since 1870; rainfall about the average; sunshine more than in any of the previous five years. The barometer minimum reading on the 8th, 27.861, was unprecedentedly low

in England, but a slightly lower reading was recorded in Scotland in year 1884.

— THE same correspondent gives the SUMMARY OF THE WEATHER FOR THE YEAR 1886 as follows:—Mean temperature of the year, 46.8°; maximum on the 4th of July, 82.8°; minimum on the 7th of March, 8.4°. Maximum in the sun on 4th of July, 138.2; minimum on the grass on 7th of March—5.4°. Mean temperature of air at 9 A.M., 46.9°; mean temperature of soil 1 foot deep, 48.0°. Number of nights below 32°—in shade 88, on grass 152. Total duration of sunshine for year 1088 hours, or 25 per cent. of possible duration. Maximum duration in one day, on the 5th of July, 14.2 hours. We had ninety sunless days. Total rainfall in year, 27.82 inches; maximum fall in twenty-four hours on the 13th of May, 2.02 inches. Rain fell on 191 days. Approximate averages for the year:—Mean temperature, 48.2°; rainfall, 25.10 inches; sunshine (five years) 1274. Remarks:—The year may be described as very cold and dull and of slightly more than average rainfall. The heavy snow-storm on March 1st, followed by a fortnight of intense cold. The tremendous rains and heavy floods and absence of sunshine in May, a general absence of severe gales and thunderstorms. The sunshine is less than in any of the previous five years. Vegetation was very late throughout the year. The fruit crop was generally a good one, except Apples, which were very scarce. Plums were especially abundant. It has been a good year for Roses, and also for all late-flowering plants. The trees kept their leaves unusually late.

— WE learn that an exploratory expedition to the island of FERNANDO NORONHA will shortly be undertaken by Mr. H. N. Ridley of the British Museum, the funds for which have been contributed by the Royal Society. This island is situated a few degrees south of the equator, and 200 or 300 miles off Cabo de S. Roque in Brazil. The marine fauna and flora were collected by the naturalists in the "Challenger" Expedition, but as Fernando Noronha is a Brazilian penal settlement, it does not appear that any naturalist has until now had an opportunity of investigating the flora of the island itself. The permission for Mr. Ridley's expedition has been obtained from the Emperor of Brazil by the trustees of the British Museum, and the results are likely to be very interesting.

GRAPES WITHOUT HEAT FOR THE MILLION.

(Continued from page 8.)

TRAINING.—Upright training is the best, or if horizontal the bearing growths must be taken up. It is no use seeking vigour by depression. For a fair amount of light to reach the needful annual growth the canes should be at least 3 feet apart. This allows 18 inches on each side for training in the annual growths. If we have a low wall, the uprights must be multiplied and the vine extended sideways to make up for the deficiency of height. I consider two upright rods sufficient for a wall over 20 feet in height, the vines 6 feet apart; for walls 12 feet high four upright rods, the vines being 12 feet apart; for walls 8 feet high six to eight upright rods, the vines being 18 or 24 feet apart. It follows that the vines can be planted nearer or further apart. What I shall insist on is, that the rods be not nearer for upright training than 3 feet, and if horizontal training is practised 18 inches. I am aware that vines, as generally seen against walls in this country, have the rods much closer, sometimes not more than a foot apart, and the bearing shoots or annual growths are often not 9 inches apart. The consequence is the vine is a perfect thicket of small weakly shoots, not half of which carry fruit, and those that do have small insignificant bunches and berries, and being deprived of the sun's warmth and light so essential to the solidification of a well-developed growth and ripening the fruit. By having the shoots further apart we concentrate the strength on the fewer parts, get the four shoots in one, and secure much finer bunches and berries, which swell and ripen better; indeed, they are more esteemed at table and bring better prices from the fruiterer. With cultivation we could grow finer grapes in this country against walls than find their way from foreign vineyards. With the spurs 18 inches apart we can train in two shoots if the vine does not grow sufficiently vigorous to cover the space, and I find this an excellent plan for renewing the spurs, as when close pruning is not satisfactory we have only to train in another shoot from the base, and this from not carrying fruit plumps the base eyes; besides, I have practised the double-spur system with manifest advantage. In this case we take two shoots from each spur annually. One is allowed to fruit and the other not, and this last forms very much finer buds than the fruiting one at the base, and ripens the wood very much better. The fruited shoot is cut

out in each year so soon as the Grapes are cut, and the other shoot is cut back to a couple of eyes. The Vines do all the better for the extra foliage.

The Vine does not make such large foliage against a wall as it does under glass. Under glass the rods should be 4 feet apart, and if those in the house are given 4 feet 6 inches it will be an advantage, therefore we must plant according to the variety we want and time allowed for covering. A Vine with one rod will give as fine Grapes as another with two rods. A large Vine neither gives larger bunches nor larger berries than a small one. In the case of the house, the lean-to of 6 feet in addition to the strong-growing sorts on the wall, we can train up a rod at every 8 feet of Frontignans. The shade will not greatly prejudice the Vines on the wall if they are kept within reasonable bounds and thinly disposed in the spur shoots, besides which, a line of growth can be taken all along the front just above the front boards, and this will give some acceptable Grapes without injury to the other. In no case must there be a "grabbing" system practised. The Vine gives returns for proper treatment bounteously; it resents bad treatment in a remarkable manner, especially overcrowding and overcropping.

When the eyes break and the shoots advance we rub off all but those wanted. Secure the growths loosely, as the shoots thicken fast and tightness may destroy many yards of growth. Stop the laterals at the first leaf, pinch or cut off the tendrils, and if the lead breaks into two reserve one and cut the other away. Let the shoots have all the run they seek, and stop all side growths above the joint as made. If unequal in growth, depress the strong or raise the weak. If for training horizontally, take three shoots, train all up, depress (if any) the centre one, get as much equal vigour as possible into the two side ones. The foliage being off, we have ripe wood with plump eyes at the base upward. Leave all that is brown and hard. If a cane leave it 6 to 8 feet long; if two, and ripe to that extent, make both alike and cut away the laterals. The wood not being ripe so long cut back to where it is. Unripe wood is useless. Bring down the canes, and if two are wanted take uprights 18 inches on the side of the stem; if more, take each to 4 feet 6 inches from the stem, then up if four uprights are wanted, if more continue horizontal. The canes should be taken up with a bend, not an angle.

Spring or warmth will bring up the sap, the eyes will swell before that occurs in the upper part of the canes; bring them down horizontally, even depress the ends below the base. It will cause the base eyes to break evenly with the top and all along. The cane being a single one, take a shoot as near the base as possible to the right, and on the same side take another 18 inches or as near as it can be above it, and so on. On the other side take a shoot 9 inches higher than that on the opposite side, and then 18 inches asunder upward, so that we have shoots 18 inches apart on opposite sides of the cane or rod as it now is, and the uppermost shoot is trained as leader, allowing it to grow unchecked, as the one it forms a continuation of did in the previous year, and it is to be treated in precisely the same manner, also succeeding ones, until the allotted area is covered.

In the case of horizontal training, we have three shoots or canes. The two side or lowest ones are trained horizontally about 1 foot from the soil and only have the unripe wood removed. The centre one is cut back to 18 inches, and we take three growths from it as in the previous year, and so on year by year. Along the horizontal canes rub off all buds except those suitably situated at 18 inches apart, and train the terminal in as leader—that is, to be subjected to the same course as its forerunner. In addition to those modes of training there is the serpentine mode. It is a way to have as much useless rod as possible, and is at best fanciful. There is also the "no-particular-system." It is a good one, for it aims at keeping the space well furnished with bearing wood, young growths being trained in to replace old or those that are weakened by bearing, and it answers capitally. The thing with it is to get the wood ripe, and that can only be effected by the foliage having proper exposure to light and air, so that it is done upon the soundest principles. The spurs are trained similarly to the others, and when they are enfeebled that part of the Vine is cut out and a young well-ripened cane trained in its place. It is a matter of getting the space covered with bearing wood and keeping it replenished. It is hardly possible to train a Vine wrongly, only have young wood so disposed as to form plump buds, short jointed, thoroughly solidified, and ripened; retaining none other for fruiting. Let a Vine go wild, and it soon becomes a thicket of unfruitfulness.

STOPPING.—The bearing shoots should be stopped one or two joints beyond the show of fruit. If no fruit show, stop at the sixth joint. Pinch out the point of the laterals below the bunch at the first leaf, or rub them off, except from the two lowest leaves. Above the bunch let the laterals extend if there is space. When

that is covered stop and keep them closely pinched afterwards to one leaf as made, and if likely to crowd the principal leaves rub them off. Never allow growth to get beyond the control of the finger and thumb, and always retain intact the principal foliage, especially that of the base buds, and the laterals are best retained on these in vigorous Vines, lest by close stopping above they should be forced into growth.

CROPPING.—A bunch of Grapes may be taken off every shoot at the distance indicated—viz., 18 inches, and this will be an allowance of $2\frac{1}{4}$ square feet. A pound is plenty for Vines to give year after year in such a space, so if the bunches are large the Vines



Fig. 9.—*Erica verticillata*.

must be eased by reducing the number. The crop should also be apportioned to the vigour of the Vines. Very vigorous Vines may carry heavier crops than those moderately vigorous, and those again may have more fruit taken than from weak Vines. It is matter for rational consideration. If error is made it should be on the safe side—under rather than over-cropping. Quality is everything in Grapes.

THINNING.—The shoots will show, perhaps, more bunches than are wanted. Only wait until the best can be distinguished, then remove the others. To leave them until after flowering only induces a bad set, for it is absurd to suppose two bunches will set better than one, though one on a shoot is likely to set better than two. When fairly swelling (the berries being the size of small green Peas) commence thinning. Take out the small and stoneless berries first, then thin so that the berries will have room for swelling to their full size without wedging and forcing the berries out of shape. Avoid, on the other hand, taking out so many that the bunch will have a loose appearance and not keep itself in position when cut and placed on the dessert dish. I should not like to decide as to whether a bunch too little thinned or an over-thinned bunch of Grapes is the most unsightly. It is difficult to tell how to thin Grapes. Inexperienced persons should first cut out the small berries, wait a few days, and then thin out what seems super-

fluorous, and a third examination may be made before the Grapes commence colouring, and where the berries are too crowded remove the worst. A little practice and close observation will soon make a good Grape-thinner.—G. ABBEY.

(To be continued.)

WINTER-FLOWERING HEATHS.

THERE are probably very few winter-flowering plants increased and sold annually to such an extent as winter-flowering Heaths; that is, if we may judge from the great trade sales which are held annually in the neighbourhood of London, besides the scores of thousands which are sold by nurserymen in the usual way of business. The majority of those sold at these sales are bought up by florists, and are used for decorating, and by the time they have finished flowering, or sometimes before, they are dead, as they are often placed in positions where they cannot possibly be watered. That winter-flowering Heaths when purchased just as they are advancing into bloom can be grown successfully for several seasons we have proved beyond doubt, and if attended to as we shall describe, any readers who possess a greenhouse can succeed in growing them. It cannot be expected that amateurs will succeed in propagating this class of plants, as very few professional gardeners succeed, and they find it far more profitable to purchase plants just before they come into bloom. The most popular are *Erica gracilis autumnalis*, *E. hyemalis*, and *E. Wilmoreana*. The former has rosy-purple flowers, and is just past its best; *E. hyemalis*, pink, tipped with white, and is now in full beauty; and *E. Wilmoreana* is similar to the preceding, but later; *E. verticillata*, fig. 9, is less well known, but very showy, with long drooping, red flowers.

If plants are purchased in the autumn the most suitable position when received will be on a front greenhouse stage, not too far from the glass, and well exposed to light and air. Although Heaths delight in a free circulation of fresh air, they must not be subjected to a cold draught, as that would be fatal. Dryness at the root is also fatal, and probably ninety-nine out of every hundred die through the soil being allowed to become too dry. On the other hand, the plants must not be over-watered, as both extremes are fatal. Water should be applied just as the soil is becoming moderately dry, and it should then have a thorough supply, so as to moisten the whole ball of soil, and do not water again until the same condition is reached. After the plants have finished blooming the shoots should be shortened to about 2 or 3 inches of the current season's growth, and be kept well exposed to light and air, as the growth becomes sturdy. About the first week in March the plants will need placing into a size larger pot.

The compost used should be rough peat, with a sixth part of sharp silver sand and a little charcoal. The pots must be particularly well drained, and the compost rammed firmly around the old ball with a blunt-pointed stick. Keep the collar of the plant well up, as the stem must not be buried. After potting place the plants on a close stage (ashes is suitable for the stage to be surfaced with), and do not admit any side air for two or three weeks. About two days after repotting the plants should receive a thorough watering, and be damped about the pots twice a day.

About the first week in May stand the plants out in a cold frame, and a month afterwards place them out in the open air. Beyond attention in watering, nothing further will be required until about the middle of September, when the plants may be placed in the greenhouse. Rain water should always be used.—A. YOUNG.



HARDY FRUIT GARDEN.

HEAVY falls of snow and severe frosts have stopped much of the work in this department, and it will be unwise in many instances to attempt much in the way of pruning, nailing, planting, and other seasonable work till the ground is in better condition. On no account should any planting be done at present, so much depending upon this being properly performed, and it is very certain the soil will not be in a fit state to receive the trees for another month or more. In many instances the trees have been received and laid in by the heels, and those who may have their orders executed at the present time should either store them in the bale just as received in a cool dark cellar, or where no cold drying or frosty winds will reach them, or if the weather permits lay them in singly, choosing a sheltered spot for them. All trees thus laid in should also have some loose straw or other litter thrown over them, this protecting them from severe frost and parching winds. We also usually make a special request to the nurserymen who supply the trees, that our consignment be packed as soon as possible as they are lifted, too many trees and plants being seriously injured in cold draughty packing sheds. It is to the nurseryman's as much as the gardener's credit that the newly bought trees do well; but if the roots, besides being much damaged in the lifting, are also unduly exposed to all weathers, they are a long time in recovering from the check administered, and the gardener gets the blame.

ORCHARD TREES.—These are too often neglected, this being especi-

ally the case with the older trees. Many garden trees are too freely pruned, while perhaps an orchard on the same place is never touched. To be constantly hacking young orchards, these being principally standard Apples on the Crab stock, is very unwise, a plentiful crop of strong shoots and little or no fruit resulting. Till such times as a well-balanced head is secured a certain amount of free pruning is necessary, after which no shortening back should be resorted to unless any of the limbs are unduly ahead of the rest, when these should have their leaders hard cut back to some of the less gross lateral growths. This fore-shortening, as it is technically termed, is also necessary in the case of trees that extend beyond the space allotted to each. Where the branches are at all crowded, crossing each other in all directions, they require to be freely thinned, a moderate number of regularly arranged limbs being best calculated to eventually develop in a strong free-bearing tree. It is by no means an uncommon occurrence to see whole fagots of wood cut out of large Apple trees, but this practice cannot be too strongly condemned. Freely thinned out they should be, but even if they are in a very bad light, such wholesale destruction should not be resorted to. All weakly inner growth being valueless should be first removed, and a small hand-saw is the proper tool for thinning out the interlaced branches all over the tree, trimming round the wounds with a knife. In some cases fore-shortening ought to be practised, but in no case should there be any fagots. It takes some time to properly thin the branches of a large tree, especially for the first time, but the following winters it will be very light work. At the present time, unless a frost prevails, the men will do more harm than good in the garden, but the orchards being usually grassed down no harm will be done by trampling.

REMOVING MOSS AND LICHEN FROM FRUIT TREES.—This is not always such a difficult matter as some imagine, and it is very certain its removal has a most beneficial effect on the trees. These parasites are most plentiful where the soil or position is badly drained, and where the air is also much excluded from the trees; remedy this and the moss and lichen will disappear. The ground might have been well drained at the outset, but the roots of the trees gradually either disconnect or choke the pipes, and stagnation is the consequence. The first proceeding then should be to drain afresh, also thinning out the trees where necessary. If this fails to effect a cure, or cannot be given a trial, much may be done towards destroying the parasites with the aid of newly slaked lime, this being shaken well among the limbs when damp, and abundantly dashed into the rough stems. Some prefer to make thin limewash, and either syringe the trees or apply it with brushes, and if the stems have been previously scraped the lime will be still more effective. Others have used soap-suds and weak brine with good results.

AMERICAN BLIGHT.—This is still more injurious to the trees and harder to get rid of. Petroleum added to soap-suds at the rate of 1 pint to the gallon of the suds, kept stirred as it is being forcibly syringed against the affected parts will, if persevered in, destroy the pests without injuring the tree. We prefer to brush in a mixture of gas tar and clayey water in equal parts, and this never fails.

FRUIT FORCING.

VINES.—*Early Forced Vines in Pots.*—Allow the laterals beyond the bunches to extend as far as space permits, as the more foliage a Vine has fully exposed, the greater will be the root action, and the better nourished will be the fruit. Supply liquid manure slightly warmer than the temperature of the house, and surface dress with rich compost. If the Vines have the benefit of a bed of fermenting materials, place some turves around the rim and so as to reach over on to the fermenting bed, filling the space between the turves and stem of the Vine with rotten manure, keeping the turves and fermenting materials about the pots moist so as to encourage the roots to extend beyond the pots. Turn, and add to the fermenting materials as they settle down. Discontinue syringing after the Vines commence flowering, as a somewhat drier atmosphere is desirable at that time, but when the berries are set, keep the floors and walls damp by sprinkling in the morning and early afternoon, and the evaporation troughs should be filled with liquid manure or guano water, 1 lb. to 20 gallons of water.

Early Houses.—Avoid a close atmosphere. Ventilate when the weather is favourable, so as to give substance to the foliage, closing early, and allowing the temperature to rise to 80° or 85°, so as to utilise the sun heat and secure as long a day's growth as possible, or whilst there is light. The temperature after the Vines are in leaf should be 60° to 65° at night, and 70° to 75° by day artificially, keeping it through the day with sun heat at 80° to 85°, with air more or less from between 70° and 75° according to the state of the weather. Disbud as soon as the best can be selected, and leave only one shoot to each spur, though where the Vines are weak and the spurs a good distance apart, two shoots may be allowed, especially where the space is not sufficient to allow a good extension. The extra foliage, always providing it can be properly exposed to light, will do much to encourage root action and secure well swelled berries.

Late Vines.—Late Grapes well ripened of the thick-skinned kinds may be cut with as much wood as can be spared. Do not remove the wood above the bunch, but retain it as far as practicable, as we find the Grapes keep more plump with wood beyond the bunch than without. The lower ends should be placed in bottles of rain water about three parts full, placing a piece of charcoal in each bottle. The bottles will require to be placed in a slanting position, which needs no expensive contrivance, but simply a rest for the bottles and a strong lath, to which they may be secured with string in a leaning position. It is necessary that the bunches do not touch each other. Scrutinise for and remove all decayed berries, securing as near as possible an equable temperature of 45°.

Pruning.—Let all Vines from which the Grapes have been cut be pruned without delay. In performing that operation some are careful only to cut to a plump bud, from an idea that the largest eyes afford the largest bunches, but except in the case of weakly or very luxuriant Vines the practice is not desirable, as from eyes nearer the base the bunches will be large enough for table purposes, and will be more symmetrical and compact in form, and having larger and more even berries, attaining to a more perfect finish than large loose bunches, which, as a rule, are uneven in berry and finish badly. We consider it a safe rule to retain two eyes in pruning, but if from overcropping or other cause the Vines do not give sufficiently large bunches, or in the case of strong Vines the base buds are small and pointed, and when a departure is made from it in quest of large bunches, select a plump eye as near to the main rod as possible. In the course of time the spurs by this plan become unsightly, but that can be prevented by laying in young wood, and cutting away that which has fruited, or fresh rods can be run up for displacing those with very long spurs. The cuts, so soon as the pruning is finished, should be dressed with styptic or knotting to prevent bleeding.

Dressing the Vines.—Remove the loose bark and wash the Vine rods with soapy water, 4 ozs. to a gallon, and unless there has been an attack of red spider or other insect pests this is all the dressing required; but if those and other pests have infested the Vines dress them with a composition formed of 6 ozs. softsoap, half a gallon of tobacco juice, half a gallon of water, a quarter of a pint spirits of turpentine, and as much flowers of sulphur as will make a creamy mixture, applying it with a brush, and rubbing it into every angle. This is fatal to every kind of insect—red spider, thrips, scale, or mealy bug, and subdues mildew. The border should have the mulching and loose surface soil removed to a depth of 2 or 3 inches, and a top-dressing given of good loam with a liberal addition, about a twentieth of crushed bones and a similar proportion of wood ashes. If the Vines have exhibited a tendency to softening of wood apply a dressing of quicklime, a bushel per rod (30½ square yards), and point it in lightly with a fork, being careful of the roots. The house should be thoroughly cleansed and painted if required. Keep it as cool as possible, so as to insure a few weeks' complete rest.

Lifting Vines.—If the borders are not satisfactory no time need be lost in lifting the roots and relaying them in fresh compost, making sure that the drainage is complete, for the Vine requires abundance of water during growth, and without thorough drainage the water causes a state of the soil more disastrous than drought. If the Vines are planted inside, and have the range of inside and outside borders, the renovation may be effected without loss of crop, remaking the inside border one year and the outside the year following.

PINES.—The plants which completed their growth early last autumn, and have been treated so as to fruit early in the year, will now be doing so; if not, they must have extra care and attention, which will be fully repaid by the fruit ripening at a time when it is most valuable. Take every advantage, therefore, of favourable weather to afford increased heat during the day. Allow the temperature to rise to 80° before giving air, then allow it to further rise to 85° or 90°, closing at 85°; the night temperature being raised to 70°, to 75° by day by artificial means, unless the weather be dull and cold, when 5° less will be more suitable. Corresponding moisture will need to be maintained, not seeking it, however, by syringing overhead or over the pipes when hot, but by damping unheated surfaces two or more times a day. The heat should be kept steady at the roots at 85° to 90° for Queens, other varieties 5° less. Examine the plants once a week, watering such as require it with weak liquid manure liberally at the same temperature as the roots.

Fruiting Plants.—These should have a night temperature of 60° to 65°, 65° by day in dull weather, 70° to 80° by day with sun, ventilating a little at 75°, and closing so as to enclose a little sun heat, at which time sprinkle paths, walks, and walls.

Succession Plants.—Keep these slowly advancing in a night temperature of 55° to 60°, 60° to 65° by day, with an advance from sun heat of 5° to 10°, and moderate ventilation, it being safer to err on the side of moderate dryness with these plants for the present rather than afford too much moisture at the roots or in the atmosphere.

FIGS.—*Early-forced Trees in Pots.*—The trees started in November to afford ripe fruit in late April or early May will be forming fresh roots plentifully, the bottom heat being kept steady at 70° to 75°. Bring up the fermenting materials to the rim of the pots if not already done, and instead of allowing the roots to come over the rim of the pots unchecked to ramble at will in the fermenting material, place pieces of turf (as before advised) round the rims of the pots and extending over or down the sides into the fermenting material, with a view of keeping the roots near home and to induce a sturdier growth, as when the roots ramble through the leaves in the early stages of growth the shoots partake more or less of the character of the roots; besides, with the roots near home the top-dressings are more readily available as food for the trees. Maintain a good moisture in the atmosphere by syringing twice a day and damping as may be required in bright weather, taking advantage of every gleam of sunshine for raising the temperature to 80°, admitting a little air at 70°, increasing it with the temperature, closing at 75°, and so as to raise the temperature from sun heat to 80°. See that there is no lack of water at the roots. The drainage being good there is little to dread from giving too much water, many crops being lost by their keeping it too dry. The temperature by day in dull weather should be kept at 65°, 60° at night when the external air is cold, but 5° higher when the weather is mild. Disbudding will need to be attended to as growth

advances, and gross shoots stopped at about the fifth or sixth joint; but the finest Figs are borne upon extensions.

Early forced Planted-out Trees.—The trees in the house started early in the month and planted in inside borders will, if the borders have had repeated waterings at a temperature of 85°, so as to bring them into a thoroughly moist condition, be starting into growth, and may have the night temperature increased to 55°, 60° to 65° by day from fire heat, with an advance from sun heat to 70° or 75°. Syringe twice a day as before advised, and see that the borders are properly moistened. The afternoon syringing should always be done so early as to allow the trees to become fairly dry before night. If the trees are weak a thorough soaking with liquid manure, not too strong, at a temperature of 85° to 90°, will assist the growth.

CHERRY HOUSE.—Beyond the necessary attention in watering trees in pots and syringing the house, with attention to ventilation, there will be little needed at present, the temperature being kept at 40° at night, 45° to 50° by day by artificial means, ventilating at 50°, and allowing a rise of 10° to 15° from sun heat, with full ventilation, closing at 50°.

PLANT HOUSES.

Zonal Pelargoniums.—Those that were in the conservatory during the autumn, and have since been kept perfectly dry at their roots, may be cut back. Place them in a vinery or Peach house where a temperature of 50° can be maintained until they break into growth. Syringe them twice daily during favourable weather, but give no water at their roots until growth commences. From amongst those that have more recently discontinued flowering, some of the most compact may be selected for flowering again, which they will do in a very short time if given a temperature of 50° to 55°. These may be top-dressed or given a little artificial manure on the surface of the soil after thoroughly watering them. The remainder of this batch should be prepared for cutting back by keeping them perfectly dry at their roots. Young stock of both single and double varieties that have been wintered in 3-inch pots in a temperature of 40° may now be transferred into 5-inch pots. Pot firmly in a compost of fibry loam, one-seventh of manure, and a little sand. Place them afterwards on a shelf close to the glass where a night temperature of 50° can be maintained until they make a start, when 5° more may be given. Water carefully until they are rooting in the fresh soil.

Fuchsias.—Autumn struck cuttings that have been kept slowly moving during the winter on a shelf close to the glass may now be placed in 5-inch pots. These should be potted moderately firm, and about one-third of leaf mould may be added for them to the compost advised above. Each plant should be supplied with a small stake, and then grown on close to the glass in a temperature of 55°. These will make useful decorative plants in the pots named, and when they have filled them with roots supply weak liquid manure or artificial manures applied to the surface. A number of old plants that have been resting in a cool shed or other position may now be pruned and introduced into a Peach house or vinery. At first only syringe them twice daily until they are starting, when the soil may be thoroughly soaked with tepid water. When they have broken into growth the whole or the greater portion of the old soil should be shaken from their roots, and the plants placed in smaller pots, to be afterwards transferred into a larger size when in active growth.

Lantanas.—Plants that have been at rest may now be closely pruned in and introduced into gentle heat until they commence growth. In this stage they must be turned out of their pots and the old roots partially reduced, and then repotted into the same or smaller pots as the case may be. These plants do well in the compost advised for Fuchsias; the leaf soil encourages rapid growth, which is beneficial in their early stages. When placing them in their largest pots use the compost advised for Pelargoniums.

Cannas.—These are useful for conservatory and room decoration, especially where groups of plants have to be maintained in dark corners, which is often the case. While these plants are at rest we invariably turn them out of their pots—that is, if these are required for other purposes, and store the roots in a shed or under the stage. If out of their pots, place the roots on the surface of the Vine border and scatter some leaf soil amongst them. When they have started into growth the stock can be increased by division. The plants are most useful in from 5 to 7 inch pots.

Rhynchospermum jasminoides.—This will do well in the greenhouse, but in such positions is a long time before it attains any size, for its growth is only short and sturdy. To increase the size of the plant rapidly it should be started and given stove treatment after enjoying a good rest in a cool place. In heat this plant makes growths several feet in length in the course of a season, and quickly covers a good sized trellis. By introducing a few plants at a time in a temperature of 50°, increasing it to 60° as growth extends, a good succession of flowers can be obtained. Cuttings of young wood strike freely in heat in sandy soil under a bellglass, and beautiful decorative plants can be grown in 5 and 6 inch pots by this method in about two years that will be covered with bloom. The growths should be trained upright at first, and then round four or five stakes, from which lateral growths will be produced, and the plants will assume the habit of bushes.

Mignonette.—The recent severe weather has compelled the use of more fire heat than is good for the well-being of these plants where large spikes of bloom are required. Be careful to use no more fire heat than is really necessary, only just exclude frost from them or they will grow weakly. Any plants in this condition by too close treatment may be tied down

if on trellises; if they are showing flowers pinch them, and if they are kept cool and plenty of air given whenever favourable, they will, as the days lengthen, increase in strength and vigour. To all plants with their pots full of roots give a little artificial manure to the surface at intervals of two or three weeks. To maintain a succession of spikes for cutting it is often necessary to keep the plants in a temperature of 45° to 50°, but under these conditions the spikes will only be small. Be careful not to overwater them, and on the other hand they must not be allowed to suffer by an insufficient supply, or their shoots will become woody, and only poor spikes will result.

Ericas.—Such Heaths as *Erica hyemalis* and others as they cease flowering should be cut down at once and placed where a night temperature of 45° is maintained. This is important if they are to flower another year, for if their growths are late they cannot be expected to become thoroughly ripe and set a good crop of flowers. These plants should be stood on a moist base such as gravel or ashes afford. Keep young plants cool so as not to excite them into growth, for if they have been properly managed those in 3-inch pots will have sturdy growths about 1 inch long, which will grow rapidly after they are placed in their largest pots. The object is to get old stock into the same condition as the young ones as early as possible, then success can be insured. In the northern parts of the country it cannot, unless every effort is made to encourage an early growth.

THE BEE-KEEPER.

FOREIGN RACES OF BEES—A NEW FOUL BROOD —TUNISIAN BEES.

"A NOTTS BEE-KEEPER" (page 592, last vol.) wishes for my experience of the Cyprian and Syrian bees. Of the first I never succeeded in getting a live queen till the past autumn (I have two at present), so cannot say anything; but of Syrians I have had about twenty, each one of which came from Mr. Benton per post from Beyrout at different times between 1881-6, so I ought to know what they are like. My experience is not yet as perfect as I should have liked, because since 1883 my bees have been troubled with an infectious disease, closely allied to "foul brood," a disease pronounced by Mr. Cheshire to be quite new to him; it has at no time the slightest smell, and as I thought that only foul brood was infectious, and that it could not be mistaken on account of its strong smell, I succeeded, through interchanging combs, to get it in every hive before I realised its infectious nature. In the spring of 1885 I sent queens and specimens to Mr. Cheshire, who described it as a new bacillus disease, which lay in strings like links of sausages and not like bacillus aln e, which is like pieces of sticks crossed anyhow. He promised to cultivate it, and I took to trying to cure it with phenal, but it proved a signal failure. In 1886 I tried Woodbury's starving plan, otherwise called Jane's, which has so far proved a success. It will thus be seen that I have not had my apiary in a healthy condition to reap large harvests of honey, but as I believe every stock I have now is healthy and strong and shall know how to prevent disease in future, I hope to fairly test all kinds of bees and their crosses—viz., Cyprian, Syrian, Carniolian, and Tunisian bees, having imported queens of all these races.

Of Syrians I find imported queens very tender the first winter here, and what is worse they often "go missing" during the summer. Even when introduced to young bees abroad I have found them missing ten days after and queen cells well under way. "A Lanarkshire Bee-keeper" describes Syrians as being vicious during the swarming fever, and much inclined to rob; neither of these vices have I noticed in the produce of imported queens, nor in pure home-bred ones, but I had one home-bred Syrian that mated to a hybrid Italian drone, which was very vicious, though it showed no inclination to rob. I have had two imported Palestine queens and want no more. I should judge that his Syrians are Palestines crossed with hybrid Italian drones, for if not imported direct they may be superseded as a young laying daughter reigning instead within three weeks' time, as I have several times experienced. Then again in America and with some here the Palestines are called "Syrian." The editor of the *American Bee Journal*, on being requested to make a distinction, said they were properly called "Syrian," as a reference to a map of Asia (probably a political map) would show, and triumphantly finished up his geographical knowledge by referring to Scotland, describing it as "one of the British islands." I do not think "A Lanarkshire Bee-keeper" is so confused, but I would just like to know the history of his "Syrians," as his letters are freely copied in the American papers, and I have not been able to corroborate his observations on them. I do not doubt his honesty—this is above

doubt—but I do seriously doubt his having the true Syrians. That these bees are not naturally vicious may be taken for granted when we remember the natives sometimes have 500 hives piled one on the top of the other, entrances facing the street, the said street only wide enough for two loaded mules to pass, and nearly all keep bees. How would the naked children and half clad natives get on if bees at swarming time had to be taken two miles from everywhere?

Regarding the management of these bees, how many send for a queen in May or June, give her to three or four frames of bees, and as soon as nine or ten frames are full at the beginning of July, put on a crate of sections, and just when they expect them to be full of honey they find them full of brood and not a pound of honey in the whole hive, instead of the thousand pounds they expected? I do not believe the foundation of success can be laid any spring with these bees, but must be done during summer for the next season, and I advise the following proceeding:—When you get your queen in the spring give her to a good strong stock, keep taking out a frame of eggs to rear other queens for hybrid stocks, and neither let your imported queen be extra strong or weak in bees, about ten standard frames well covered will do; in the fall she should be given by means of my direct "Law" to a black stock of bees to winter, these will keep her in check, and the next season she will be acclimatised. As soon as nine or ten frames are well covered add nine or ten more frames under them—she will fill eighteen standard frames with brood—and when the bottom set is full of brood and July has not come in, piles of sections, supers, &c., can be gradually put on the top; in fact, they must be worked on the Stewarton system, whether for comb or extracted honey. A third set of brood combs may be given under the other two, but if the first two are not full of brood by the end of July all hope of a harvest is past for that season, and the best course to adopt is to give a third set under the other two and feed all August to induce breeding, unless sent to the moors; the top set of combs must be full of food for winter, and if the middle set is half full so much the better, pack them the first week in September for winter—all three sets of comb, mind—and it matters not whether the hive has a wire cloth bottom or stands a yard above ground with no bottom at all, so long as they are dry and warm on all the other five sides and there is plenty of ventilation below, the bees will be sure to winter all right, and every bee hatched in August will live to see June following, barring accidents. Thirty-five or forty pounds of sealed stores will be required, and this stock the following season, with a queen in her third year, will simply do wonders if there is any honey to be had. I have a Syrian queen at present, imported in 1884, that £5 would not buy.

Home-bred queens are ready for work the summer following their birth, are well acclimatised and cross-mated, and are better honey gatherers than the pure race; but with these as with the pure, 35 lbs. or 40 lbs. of stores must be left with two sets of combs full of bees, and a third set under to give space to prevent overcrowding; without these conditions in the fall, you may just as well expect a quart of peas out of a pint measure as an extra large crop of honey from these bees. The management in spring consists in letting them alone until the bottom set of combs shows signs of being full of bees and brood, and if the top set are all full of honey sealed they may be taken away for winter food and clean supers put on instead, thus two sets are full of brood, with a set in reserve to save the trouble of feeding. If standard frames (14 inches by 8 inches) alone are used, sixty will be needed for a stock, all on at once. The above is what I consider the proper way to manage Syrians, founded on close observation and experiment.

TUNISIAN BEES—Has anyone ever had these bees? if so, will they please give their experience? Mr. Frank Benton sent me a queen last spring (he tried in 1885, but only two workers arrived alive) which I introduced to a healthy black stock. By the time bees begun to hatch I found the stock diseased, and put queen and bees to starve, and then gave them two dry clean combs, 14 inches by 10½ inches. End of June, honey being plentiful, they kept themselves, but by the middle of July they had dwindled down to about a wineglassful of bees, with a patch of brood in one comb (one side only) the size of a penny, and as they seemed able to keep themselves, and thinking they would require acclimatising, I decided to let them alone. They thus remained till the 10th August, when I found a larger patch of brood on both sides of one frame and one side of the other, the bees much more numerous, the brood healthy, and though plenty of eggs, not much honey; so to save the trouble of feeding and to keep them alive I gave them another frame which contained about 2 lbs. of honey. I did not examine them again till the end of the month, when I found two patches each about the size of half a tea-saucer, being along the top bar close to the quilt. In September I thought I would find them some work in storing syrup, so I inverted a 2 lb. jam bottle full on, which slowly went; then I put on a 2 lb. ditto, then I examined them about the end of September, and found

the first two frames half full of brood, and a large patch in the third. When I got my other bees from the moors I noticed they could smell sweets anywhere; and though when once in possession they kept all others at bay (English Syrians and Syrian hybrids) they never attempted to take the offensive. About the middle of October I gave a fourth frame, and went on feeding. November 1st I examined again to be sure they were safe, and found two frames quite full of brood and a third half full. I never felt more surprised in my life; and the bees were so numerous that in a week's time they would be "hagging" out. I gave them a fifth frame half full of comb, which contained about 1 lb. of Heather honey, and I inverted four 3-lb. bottles of syrup on top of the frames. They took in all about 16 lbs. I examined them on the 23rd and found lots of sealed brood, about equal to 2 lbs. of bees, apparently plenty of food at last, the frame I gave on the first fully filled with comb to the bottom, and at least 5 lbs. of bees in the wing state. Had I had another comb I should have let them have it. I have not opened the hive since. Before this I was very much struck with their ability to bring in pollen on days when no other bees would stir out. On November 1st they were bringing it in as if Apples were in bloom, and in pollen stores at least they kept themselves very well supplied. At the beginning of December we had a sharp frost; on the 5th it rained in the morning and froze as it fell, everything being covered with ice; at noon I just walked round the apiary, the mercury was standing at exactly 32°, and though it was not raining it looked like it, no sun to be discerned. Of course I never expected to see any live bees about, but a Tunisian came out, marched round the flight board, then took wing, flew round almost out of sight, turned, came back, and marched into the hive. This surprised me, but being cold and hungry, and dinner likely to be ready, I left them. Since very cold weather set in, and knowing there must be very many young bees that have never had a fly, I have watched them very closely. They seem to be slightly dysenteric, but if the sun is out and the mercury is not lower than 30°, they can take a cleansing flight and safely reach their hive again, even if the ground is covered with glittering snow, nor do they seem to fly into it like our native bees do, so that now I have great hopes of having them strong in the spring.

Their apparent hardiness has not only surprised, but favourably impressed me. Coming from a tropical region I certainly did not expect it—I thought they would be more tender than even the Palestine bees—I should judge that unlike most bees they have always been wild, inhabiting rocks in the mountains exposed to all kinds of weather, and only those capable of being able to stand the cold and wet seasons have survived. The Arabs are not much inclined to follow any peaceful occupation, therefore they may get all their honey from the rocks. Mr. Benton might give us much information, I think. He has given some, the principle being that they are the blackest bees known, and that he thinks they reached Tunis from Greece. I am inclined to doubt this. I would much prefer thinking they may be the original type of our native bees; in fact, of all the black or brown bees. Anyhow they promise to be very valuable for this climate. I certainly never saw or heard of a wineglassful of bees in July getting strong enough to winter before.

The bees are ebony black, mind their own business, and only need a slight smell of carbolic acid to quiet them. Queens are very small, and whether the bees are longer lived than others, or being so much more hardy and less liable to be chilled before getting back to hives or not, the quantity of brood was very small in comparison to the bees. If this is a fixed trait, then we may expect more honey, as more fielders and less nurses comparatively will be in each hive.—A HALLAMSHIRE BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

Thomas Davies & Co., Wavertree Nursery, Liverpool.—*Catalogue of Vegetable and Flower Seeds.*

Gardno & Darling, 80, Union Street, Aberdeen.—*Select List of Vegetable and Flower Seeds.*

Ormiston & Renwick, Melrose.—*Catalogue of Vegetable and Flower Seeds.*



* * All correspondence should be directed either to "THE EDITOR," or to "THE PUBLISHER." Letters addressed to Dr.

Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (Weekly Subscriber).—We do not know of any work specially devoted to the culture of the fancy Pelargonium. Full cultural instructions have appeared in this Journal, though not recently, and if you cannot procure the information in the manner you desire, we can perhaps assist you if you state your object and means for its attainment. (*A Young Gardener*).—There are many kinds of "designs," and you give no idea of your object. If you can procure a copy of the "Landscape Gardener," by Joseph Newton, it may perhaps in some degree meet your requirements. We do not know where it can be had now; it was originally published by Messrs. Hardwicke and Bogue, Piccadilly.

Autumn Pears (W. J.).—We doubt if any variety will suit your purpose better than Williams' Bon Chrétien.

Odontoglossum ramosissimum (S. E.).—This Orchid succeeds best in an intermediate house, but is rather difficult to establish, though when healthy it flowers well and is worth growing. The sepals and petals are narrow, white, purple at the base, the lip heart-shaped, purple in the centre.

Pillar Plants for Intermediate House (T. T.).—Besides those you name *Jasminum gracillimum*, *Plumbago rosea*, *Rondeletia speciosa* major, *Clerodendron Balfourianum*, *Rhynchospermum jasminoides*, and *Begonia fuchsoides* would probably be suitable; but much depends on the position and height of the pillars. The temperature would be fully too high for the *Mandevilla*, and though it would grow well might not flower freely.

Vine Shoots Fasciated (Ashbourne).—The chief cause is over-luxuriance. If the shoots showing the defect are leading ones we find it better to cut the part away and train up a lateral from the joint next below, which will make a good cane, only the growth is delayed a little. If the shoots are laterals, take two from each spur, making choice of the best for extension, cutting the other away, and by allowing growth to be made so far as space admits the vigour will be subdued.

Prices of Digging, Bastard Trenching, and Trenching (J. J. S.).—The prices vary in different localities and soils. For digging light soil a spit deep, 3d. to 4d.; heavy soil, 4d. to 5d. Bastard trenching in light soil, 8d. to 10d.; heavy soil, 10d. to 1s. Trenching in light soil two spits deep, 1s. to 1s. 2d.; heavy soil, 1s. 3d. to 1s. 6d. per rod (30½ square yards). The wages of good day labourers, where those prices obtained, were 2s. 6d. per day. A great deal depends upon the nature of the soil and the way the work is done. The name of the plant that grows in Africa and is called the Silver-leaf, is *Leucadendron argenteum*.

A Boiler Difficulty (Inquirer).—As you desire to have the use of the horizontal flue you must try the effect of heightening the chimney; this can easily be done, temporarily, with a few lengths of piping. If that is not practicable or does not answer you will have to abandon the horizontal flue and conduct the smoke away direct from the boiler into a chimney in the back wall. There was perhaps a greater rise from the old boiler into the horizontal flue, or the boiler may have been different, or not set exactly the same as the new. However that may be, the fault is in the flue now, if your sketch is correct, and we should be much surprised if the arrangement proved even fairly satisfactory. If you can contrive to have a nearly vertical rise from the boiler into the flue, and at the same time increase the height of the chimney, you may perhaps surmount the difficulty. It would vanish, we think, with a chimney in the back wall.

Magnolia Unhealthy (L. R.).—If the tree was seriously injured by frost it may not be possible to "restore it to its original health and vigour." We suspect from what you say the growths do not mature in the autumn, and growth from unripened wood is never satisfactory. We should prune the tree, cutting back weak or soft portions to good buds and firm wood, leaving the best portions for disposing thinly over the surface. We should then try the method of renovation detailed on page 568, our issue of December 23rd, 1886, for however good in style the soil may be, it must be more or less exhausted by a tree that has been established in it for twenty-five years.

Bones—Potatoes (A Young Gardener).—Bones broken to the size of hens' eggs would be good for incorporating with the soil of a Vine border, especially mechanically, but would be very slow in their manurial action. The smaller bones are ground or crushed the more immediate are their effects on Vines and plants. A bushel of half-inch bones to a cartload of soil is a favourite mixture with many good Grape growers. We advise you to smash the bones much smaller. We suspect the disease that attacks your Potatoes internally is incurable, and you had better procure seed tubers from a fresh source, and not place manure in the drills at the time of planting. A sprinkling of superphosphate of lime would be preferable, scattering in a large handful over a length of 8 or 9 yards.

Petroleum (F. J.).—The crystal oil to which you refer is probably highly rectified petroleum, but on this point the vendors are obviously in a better position to give you precise information than we are, a sample being requisite for the purpose of a specific reply. This, however, is not necessary under the circumstances, since the cheaper kind, incorrectly called paraffin, will answer your purpose of destroying insects if rightly used. Paraffin is a solid substance. Assuming that the crystal oil is purified

petroleum you may safely use it, if properly prepared, for syringing fruit trees. Amateurs should proceed cautiously and experimentally in using this insecticide for the first time.

Protecting Fruit Trees (Blackrock).—For the effectual preservation of the blossom of fruit trees we prefer moveable canvas blinds, only drawing them over the trees during frosty nights, when sharp morning frosts are imminent, or when the weather is such as to endanger the blossom if it were exposed. If permanent blinds are used they must be of lighter material such as hexagon netting, too close and thick constant coverings doing as much harm as good, and often a great deal more. The price of the plants to which you refer is governed entirely by the demand for them. When vendors can dispose of all they have to sell at, say, 1s. each, they will not lower the price to 6d. We presume you can raise seedlings.

Varieties of Grapes (Ferndale).—We assume you wish to grow Grapes for your own use and not for sale. This being so, we think you will find Lady Downe's Seedling the best late black Grape in cultivation. We consider Gros Maroc quite equal to Black Alicante in quality, but not nearly such a good keeper. The three varieties you name—Gros Maroc, Black Alicante, and Lady Downe's Seedling, ripen in the order named, and with a sufficient number of Vines a supply of Grapes can be maintained from them over a period of nine months, or from the end of August till the end of May. But please understand we do not recommend them in preference to all others for that purpose, but simply answer your questions.

Tuberose Culture (G. W.).—The Tuberose succeeds in a compost of fibrous loam, with a fifth of thoroughly decayed manure and a sixth of sharp sand. The soil should be moderately moist, and water not given until there is growth, then it should be given so as to keep the soil in a moist state, and when the plants are in free growth afford it and liquid manure copiously. It is an advantage to plunge the pots in a bottom heat of 75° to 85°, until the bulbs have formed roots and commenced making top growth; they should then be removed and placed near the glass in a house with a temperature of 60° to 65° at night, and 70° to 75° by day, with a rise of 10° or more from sun heat. In this they may be kept until coming into flower, then removed to a cooler house, in which they will expand the flowers less quickly and be more durable. The plants may be lightly syringed in order to keep down red spider, and aphides may be destroyed by tobacco water or fumigation, or a solution of soft soap, 2 ozs. to the gallon. Later in the season Tuberose do well in a greenhouse, or even outdoors.

Tank for Tepid Water in Hothouse (Idem).—The proposed tank would answer, built in and plastered inside with cement, having iron rods across 18 inches from the ends, and one-third the depth from the top. Three-quarter-inch rods with large heads or flanges outside would do, and they should be galvanised. Nine-inch walls will be strong enough with the iron bars, but without there is danger of bulging. You need only cement around the hot water pipes so as to make watertight, and if this is done properly there is no fear of leakage. The best tanks, however, for the purpose you require are slate, which take up less room, and are not more costly. The pipes require no particular packing to prevent leakage and cracking the tank. Cement is as good as anything.

Grafting Vines (A Constant Reader).—You can graft the Black Hamburgh with Muscat of Alexandria, and it would be best to cut the Black Hamburgh down now to a few feet above where you wish to commence the rod of the Muscat of Alexandria, dressing the end with knotting. To sprig select a smooth or even part of the rod of the Black Hamburgh, put on the scion by slice or tongue grafting, but leaving a sufficient length of the scion below the junction to reach into a bottle which should be filled with rain water and a small piece of charcoal, and the lower end of the scion should be placed in the water, securing the bottle in position with wire tied round the neck and fastened to the Vine rod. The scion should be cut a little more than three parts through at the bottom of the junction with the stock, and be made to fit the bark of the stock, binding securely with cotton, then dressing and covering the whole neatly with grafting wax so as to exclude the air. One eye, or at most two, will be sufficient on the scion, removing those on the wood below the junction. The scion will be kept fresh by the water in the bottle until the sap rises in the stock, and after the scion has started into growth and the union is complete the part below the junction may be cut away. The process is similar to inarching. The portion of stock beyond the point of union is left to attract the sap, the growth being suppressed for diverting it into the shoots that are desired to extend. An excellent chapter on methods of grafting and inarching Vines will be found in Barron's "Vine Culture."

Vines Prematurely Forced (W. G.).—What you term a "strange freak of Vines" is a most disastrous consequence of too early pruning and not allowing the Vines any rest. The weather is not to blame, for had the Vines been allowed to retain the foliage, or not been pruned until the middle of September, the disaster would not have arisen. You can do nothing now to avert the evil, only to continue the treatment necessary for perfecting the crop, such as it is, subduing the mildew by dusting the infested parts with sulphur, or sulphur fumes from the hot-water pipes ought to destroy it, but it is not a good remedy, as sulphur fumes are liable to cause rust, and so injure the tender skin of young Grapes as to prevent their swelling evenly. Continue the treatment hitherto pursued until the Grapes are ripe, and then afford a temperature of 60° by artificial means, and 70° to 75° from sun heat, with air freely above that. This will need to be continued until the weather becomes sufficiently warm for dispensing with fire heat, and the house should be freely, in fact fully, ventilated through the summer, or from May, except in cold weather. Allow a moderate extension of the laterals, but keep them away from the principal foliage or the leaves supporting the axillary buds, and they must be kept free from dirt and insects by occasional syringings, it being essential that the leaves be kept healthy and on the Vines as long as possible. If they disappear, allow some little lateral growth, so as to attract the sap, and with this and a moderately moist soil the Vines may be kept in a semi-dormant state for months. Pruning, even to have Grapes ripe in April, should not be performed before the beginning of September. With three Vines in a house that do not bear fruit something is radically wrong. Probably the border, or they have become weak by a long course of subjection to early forcing.

In that case the best remedy is to encourage all the extension possible, so as to stimulate root action, and encourage surface roots by mulching and rich surface dressings. If the roots are deep, or the border unsatisfactory, the best remedy would be to carefully lift the Vines in August, and by shading the work is safely done then, the foliage causing fresh roots to be made at once, and these working in the fresh material insure a satisfactory growth of the Vines and perfection of the crop. It, however, requires to be done carefully, and about six weeks in advance of pruning the Vines. For Vines that are to perfect their crops in April or early May the lifting should be done early in August. The method of doing the work has been frequently described in the Journal. We sympathise with you, and regret you should have set cultural practice aside for the sake of appearance, and made so disastrous a mistake.

Names of Fruits.—The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and surplus fruits beyond that number cannot be preserved. (J. Anthony).—1, Not known. 3, Ribston Pippin. 3, Roundway Magnum Bonum. 4, Not known. 5, Dumelow's Seedling. (J. Cooper).—Golden Noble. (W. Hawland).—Yorkshire Greening.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (H. K.).—Mormodes pardinum unicolor, also known as Catasetum citrinum.

COVENT GARDEN MARKET.—JANUARY 19TH.

MARKET very dull, with no alteration in prices of ordinary goods. Best samples of Grapes making better values.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.			
Apples	1	6	to	4	0	Melon	each	0	0	to	0	0
" Nova Scotia and						Oranges	100	6	0	12	0	
Canada, per barrel	10	0	13	0		Peaches	per doz.	0	0	0	0	
Cherries	1	0	0	0		Pears	dozen	1	0	2	0	
Cobs	100	lb.	60	0		Pine Apples English ..	lb.	1	6	2	0	
Figs	dozen	0	0	0		Plums	1	0	2	0		
Grapes	lb.	0	6	3		St. Michael Pines ..	each	2	0	5	0	
Lemons	case	10	0	15		Strawberries	per lb.	0	0	0	0	

VEGETABLES.

		s.	d.		s.	d.			s.	d.		s.	d.		
Artichokes	dozen	1	0	to	0	0	Lettuce	dozen	1	0	to	1	6
Asparagus	bundle	0	0	0	0	Mushrooms	.. ..	punnet	0	6	1	0	0	
Beans, Kidney	per lb	0	6	1	0	Mustard and Cress	.. ..	punnet	0	2	0	0	0	
Beet, Red	dozen	1	0	2	0	Onions	.. ..	bunch	0	3	0	0	0	
Broccoli	bundle	0	0	0	0	Parsley	.. ..	dozen bunches	2	0	3	0	0	
Brussels Sprouts	1/4 sieve	2	0	2	6	Parsnips	.. ..	dozen	1	0	2	0	0	
Cabbage	dozen	1	6	0	0	Potatoes	.. ..	cwt.	4	0	5	0	0	
Capsicums	100	1	6	2	0	" Kidney	.. ..	cwt.	4	0	5	0	0	
Carrots	bunch	0	4	0	0	Rhubarb	.. ..	bundle	0	2	0	6	0	
Cauliflowers	dozen	3	0	4	0	Salsify	.. ..	bundle	1	0	1	0	0	
Celery	bundle	1	6	2	0	Scorzonera	.. ..	bundle	1	6	0	0	0	
Coleworts	doz. bunches	2	0	4	0	Seakale	.. ..	per basket	1	6	2	0	0	
Cucumbers	each	0	8	0	4	Sballots	.. ..	.. lb.	0	3	0	6	0	
Endive	dozen	1	0	2	0	Spinach	.. ..	bushel	3	0	4	0	0	
Herbs	bunch	0	2	0	0	Tomatoes	.. ..	.. lb.	0	6	1	0	0	
Leeks	bunch	0	8	0	4	Turnips	.. ..	bunch	0	4	0	0	0	

PLANTS IN POTS.

		s.	d.	s.	d.			s.	d.	s.	d.		
Aralia Sieboldi ..	dozen	9	0	to	18	0	Ficus elastica ..	each	1	6	to	7	0
Arbor vitae (golden)	dozen	6	0		9	0	Fuchsia ..	per dozen	0	0		0	0
" (common)	dozen	6	0		12	0	Foliage Plants, var.	each	2	0		10	0
Azalea	per dozen	24	0		42	0	Hyacinths ..	per dozen	9	9		12	0
Bedding Plants, var.	doz.	0	0		0	0	Hydrangea ..	per dozen	0	0		0	0
Begonias ..	dozen	4	0		9	0	Ivy Geraniums	per dozen	0	0		0	0
Chrysanthemum ..	dozen	0	0		0	0	Lilium anatum	per doz.	0	0		0	0
Cockscombs	per dozen	0	0		0	0	Lobelia	per dozen	0	0		0	0
Cyperus	dozen	4	0		12	0	Marguerite Daisy	dozen	6	0		12	0
Dracena terminalis,	dozen	30	0		60	0	Mignonette ..	per dozen	0	0		0	0
" viridis ..	dozen	12	0		24	0	Musk	per dozen	0	0		0	0
Erica, various ..	dozen	9	0		12	0	Myrtles	dozen	6	0		12	0
" hyemalis	per dozen	12	0		24	0	Palms, in var. ..	each	2	6		21	0
" gracilis	per dozen	9	0		12	0	Poinsettias, scarlet,	doz.	6	0		9	0
Eucalyptus, in var.	dozen	6	0		18	0	Poinsettia	per dozen	12	0		0	18
Evergreens, in var.	dozen	6	0		24	0	Primula sisensis	per doz.	4	0		6	0
Ferns in variety ..	dozen	4	0		18	0	Solanums	per doz.	9	0		12	0

CUT FLOWERS.

		s.	d.		s.	d.			s.	d.		s.	d.
Abutilons ..	12 bunches	2	0	to	4	0	Lily of the Valley, 12	sprays	1	0	to	2	0
Arum Lilies ..	12 blooms	5	0		8	0	Marguerites ..	12 bunches	2	0		6	0
Asters ..	12 bunches	0	0		0	0	Mignonette ..	12 bunches	0	0		0	0
Azalea ..	12 sprays	1	0		1	6	Narciss, Paper-white, bunch		0	4		0	6
Bouvardias ..	per bunch	0	6		1	0	„ White, English, bunch		1	3		1	6
Camellias ..	12 blooms	2	0		4	0	Pelargoniums, per 12 trusses		0	9		1	6
Carnations ..	12 blooms	1	0		3	0	„ scarlet, 12 trusses		0	6		1	0
„ ..	12 bunches	0	0		0	0	Roses ..	12 bunches	0	0		0	0
Chrysanthemums	12 bches. 12		0	24	0	0	„ (indoor), per dozen		1	0		2	0
„ ..	12 blooms	1	0		2	0	„ Tea	dozen	2	0		4	0
Cornflower ..	12 bunches	0	0		0	0	„ red (French) ..	dozen	2	6		3	9
Dablias ..	12 bunches	0	0		0	0	Parma Violets (French)		6	6		7	6
Epiphyllum ..	doz. blooms	0	6		0	0	Poinsettia ..	12 blooms	4	0		9	0
Eucbaris ..	per dozen	4	0		8	0	Primula (single) ..	per bunch	0	4		0	6
Gardenias ..	12 blooms	9	0		24	0	„ (double) ..	per bunch	1	0		1	6
Gladoli ..	12 bunches	0	0		0	0	Pyretbrum ..	12 bunches	0	0		0	0
Hyacinths, Roman, 12	sprays	1	0		1	6	Stocks, various ..	12 bunches	0	0		0	0
Lapageria, white, 12	blooms	2	0		4	0	Tropaeolum ..	12 bunches	1	6		2	0
Lapageria, red ..	12 blooms	1	0		2	0	Tuberose ..	12 blooms	1	0		2	0
„ longiflorum, 12 bims.		0	0		0	0	Violets	12 bunches	2	0		2	6
Lilac (white), French, bunch		6	0		8	0	„ Czar, French, pe bnch		1	6		2	6



SOIL LESSONS.

Good mixed soil, as the term is generally used and applied by farmers, may be taken as the best for agricultural purposes. It is, therefore, desirable to understand what such is, and to strive and bring other soil into a similar condition, as near to it as is possible. Such a soil may be described as deep fertile loam, with enough small stones in every part of it to render it thoroughly porous, so as to insure a free passage for rain water as well as the free admission of air into it. Depth of soil is probably the only difficulty which may be thought insuperable in the way of an improver of land deficient in such fine natural properties. Yet even in this much may be effected by drainage and a regular use of a steam cultivator, the subsoil then gradually loses much of its crude harshness, it becomes sweet and mellow, top-dressings of ashes, bone, lime, or burnt clay passing slowly but surely downwards into it.

Drainage forms the basis of our work of improvement, and we turn to it now for that reason, and also because the present time is the most favourable of the whole year for such work. The philosophy of drainage is not at all so well understood generally as it ought to be, and we may usefully enumerate the reasons for and effects of this process once more. First, let us call attention to the important fact that though, as we have said, the mechanical division of the soil, either by a natural admixture of small stones or an artificial one of other hard substance, renders the soil porous, yet the free passage of water and of air can only be insured by drainage. If the soil is drained of superfluous water naturally all is well, but we are bound to ascertain if that is so, and to make good any natural deficiency by making enough drains of a suitable size and depth for our purpose. It is impossible to lay down rules for every case, local circumstances require special consideration, and every farm has its peculiarities to which due attention must be given. Soil lessons await us at every turn, be it our aim to try and learn each one as it comes under notice. We were recently driving through a few miles of open country more or less under snow which had fallen a week or two before the day of our drive. The appearance of the snow afforded a curious indication of the nature of the soil it covered. Upon clayey uplands, and alluvial deposits in a wide valley, the snow lay thickly, having wasted but little since it fell, thus showing that the soil was naturally retentive of moisture, and that drainage might be applied with advantage. But when we came to light, sandy, and mixed soils, the snow had wasted away so much that much of the soil was visible, and we had before us, like an open book, a clear lesson of the benefit of porosity in conjunction with drainage.

Not simply to draw off water do we make drains, but to raise the temperature of the soil and in a very considerable degree to counteract the baneful influence of drought. How is it that we raise the temperature of the soil? By preventing the constant evaporation which lowers the temperature of the surface so much. Warm air cannot enter soil saturated with moisture. Water in a quiescent state might almost be termed a non-conductor of heat, and it is not difficult to understand how undrained retentive soil is so cold even in summer; nor is it difficult to realise fully how serious an evil is that of water rising constantly to the surface of soil by capillary attraction and passing into the air by evaporation. Half fill a saucer with water, place in it a lump of clay, the upper part of which is several inches out of the water, and you may see what we mean by capillary attraction as the water gradually ascends till the whole of the clay is saturated. This is an example in miniature of what is constantly taking

place, not only in undrained soil but also in badly drained soil. The water in the saucer represents the water table beneath the soil. To prevent excessive evaporation we must have the water table low down in the subsoil, and the depth which has been found to answer best generally is 4 feet. Water always finds its own level by gravity, and, therefore, when we practise comparatively shallow drainage we would always introduce a certain number of deep drains to insure a low water table.

Having cut off the water of attraction sufficiently by drainage to render its action harmless, we have an action of the drains strictly in proportion to the mechanical division of the soil. While this is at all faulty we cannot raise the temperature of the soil fully, hence the importance of doing all we can to render the soil porous. Once achieve this and then the air enters freely; and though it is a law of Nature that heat always ascends, we may fairly claim that heat descends, or rather that the warmth of the atmosphere is carried down into open well-drained soil. A free entrance of air into the soil following a free passage of water through it does more than warm; it enriches, and, therefore, helps to render it fertile as well as sweet and mellow.

(To be continued.)

WORK ON THE HOME FARM.

Severe weather still continues, and we have to make preparations for the lambing with several inches of snow upon the land. We have had extra care taken with the ewes during the cold weather, and have taken care that no negligence in feeding shall mar the work of the whole year. Use no frozen roots; we have a splendid supply, well stored in clamps secure from frost, and only enough are taken to sheep at a time for them to consume at once. Most eager are they for the roots now that the grass is covered with snow and they are having so much dry food, so that a calculation of the quantity required is easily made. In this and in all other food fresh supplies at regular intervals answer best in every way. The animals consume fresh food with more zest than when they have an unlimited quantity to go to, and a proper check can also be best kept upon consumption by stated quantities of food being taken regularly to the flock. We like the racks to be kept well filled with pea straw, as the animal propensity to eat to repletion can lead to no harm when indulged upon such fare. It is in such a winter as this that the value of large sheds and enclosures is fully seen. That sheep live and thrive out in the open is true enough, but they thrive much better under the enjoyment of shelter in very inclement weather. Depend upon it shelter means "money," and that is a final result to which all our farm practice has to submit. Give the sheep the option of lying upon cold wet land or upon the snow, or upon a dry hard floor inside a snug enclosure, and you will see them take to the floor quickly enough, and moreover you will reap the benefit of it too. No time must be lost now in the careful preparation of a large fold with plenty of snug little pens for the lambing. We like the fold to open upon good sound grass land, and to have it well sheltered from cold north and north-east winds. Let the sides of the fold be thick enough to exclude cold wind; this is easily managed by making the enclosure with parallel lines of hurdles 2 feet apart, filling the space between the hurdles with straw. Pens and roofs, too, are also easily contrived with hurdles thatched with straw, and for very large flocks it is well either to have divisions made by setting thatched hurdles in the ground, or to have a second lambing fold, so as not to have so big a fold that there is a large open space in the middle over which the wind can sweep.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.					Rain
	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1887. January.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	deg.	1n.
Sunday 9	29.998	34.3	33.9	S.	34.8	35.3	32.4	39.4	29.7	0.076	
Monday 10	29.790	31.5	31.0	N.W.	34.7	37.4	31.2	45.7	28.8	—	
Tuesday 11	29.906	37.3	35.4	S.E.	34.5	40.4	30.3	42.7	23.2	0.124	
Wednesday ... 12	30.249	38.4	37.3	N.E.	34.4	40.1	36.9	44.7	33.6	0.012	
Thursday ... 13	30.443	31.2	31.2	Calm	34.8	32.8	30.4	34.8	25.1	—	
Friday 14	30.320	29.2	28.8	Calm	34.7	34.6	28.1	38.8	24.7	—	
Saturday 15	30.300	32.4	31.1	E.	34.8	33.2	28.7	35.8	28.8	—	
	30.044	33.5	32.7		34.7	36.3	31.1	30.3	28.3	0.212	

REMARKS.

9th.—Very gloomy day, with fog till about noon. Snow in evening.
 10th.—Bright fine day; fog in evening.
 11th.—Overcast, with showers.
 12th.—Wet early, gradually cleared; fine afternoon, clear night.
 13th.—Damp white fog all day, turning to yellow in evening.
 14th.—Dull, with slight fog all day.
 15th.—Dull all day, slight shower of sleet at noon.
 Temperature several degrees below the average, and remarkably equal on the 13th, the highest and lowest differed by only 2.4°, and on the 9th by only 2.9°, and the average daily range for the week was only 5.2°, being less than in any week for several years past. The extreme range during the week was also very small, only 12.4°.—G. J. SYMONS.



COMING EVENTS

27	TH	Royal Society at 4.30 P.M.
28	F	Quekett Club at 8 P.M.
29	S	Essex Field Club Annual Meeting.
30	SUN	4TH SUNDAY AFTER EPIPHANY.
31	M	National Chrysanthemum Society's Annual Meeting.
1	Tu	
2	W	Society of Arts at 8 P.M.

CERTIFICATED PLANTS OF 1886.

NOVELTIES of extraordinary merit have not been quite so numerous in the past year as in some preceding seasons, but ample evidence has been afforded of the untiring energy of importers and home growers in adding to the lists of cultivated plants. At the metropolitan exhibitions or meetings alone a total of about 300 certificates have been awarded for plants that have made their appearance in Britain for the first time, for others that have resulted from the skill of the hybridist, and for a few former favourites which have been rescued from the obscurity of neglect and again placed in the front rank. The Floral Committee of the Royal Horticultural Society, the Judges at the Royal Botanic Society's and the Crystal Palace Shows, with the Floral Committee of the National Chrysanthemum Society have been chiefly entrusted with the duty of passing judgment upon the numerous claimants for honours. The task has been an arduous one, for the additions annually made to the more popular genera of plants are so abundant that much care is required to avoid mistakes, and it is satisfactory that so few are made. As a rule the award of a certificate by any of these metropolitan bodies carries considerable weight, as the members of the Committees have opportunities that few others possess of seeing the majority of home and foreign novelties, and of testing their merits with large collections, the only way that an accurate judgment can be formed in the matter. It is customary at some provincial shows to award certificates for plants of a novel or striking character, but their value is usually lessened by the fact that, instead of confining this honour to new varieties or introductions, it is conferred in an indiscriminate manner simply as a complimentary recognition of non-competing exhibits. At the leading provincial shows, like Manchester, Liverpool, and York, where the Judges selected are men of considerable experience, the award of certificates is conducted rather more strictly. Too great a liberality in the bestowal of such honours is unwise and really injurious to horticulture, for the more careful and critical are the judges the greater weight will their decrees possess. This is being duly recognised now, and the tendency is rather to decrease the number of certificates than otherwise.

A glance at the lists of plants distinguished in 1886 will show the relative popularity of the various genera or families, and again we have to place the Orchids at the head, over sixty having been certificated in the year. More than half of these are *Cattleyas* and *Odontoglossums*, and these, too, are nearly all varieties, distinct forms of well-known species, indicating the demand that exists for improvements in species, the merits of which

are determined, and which possess a capacity for variation. *Cattleyas Mossiae* and *Trianae*, with *Odontoglossums crispum*, *Pescatorei*, and *vexillarium*, for example, supplied the majority of the varieties last year, perhaps the most remarkable of all being the yellow *O. Pescatorei*, denominated Knox's variety: This plant was shown at South Kensington on April 13th by Mr. Brownlow D. Knox, Caversham, Reading, and it was then regarded as a probable hybrid between *O. Pescatorei* and another unknown species. The flowers were nearly 3 inches in diameter, with broad rounded sepals, and petals of bright clear yellow spotted at the base with crimson, the lip being rather lighter in colour, but similarly spotted. It can be readily imagined what a charming companion this would make for the purple-spotted *O. Pescatorei Veitchi*, and it is not surprising that when put up for sale at Mr. Stevens' rooms on the following day it realised £165. *Cattleya Lawrenceana* has been awarded several certificates in the past year, and fresh introductions have placed so many plants in the market that it is becoming quite a moderate-priced Orchid. It is undoubtedly a useful one, being very floriferous, of good habit, and easily grown—recommendations of some importance. An illustration of this *Cattleya* appeared in this Journal, page 295, April 15th, 1886, and shows the general character of the flowers very faithfully. The species varies considerably in size and colour of the flowers, but the sepals and petals are usually of a soft purplish crimson tint, the lip almost tubular, intensely rich crimson at the tip and lighter in the throat. It has been not inaptly compared to *C. Skinneri* in its floriferous habit.

In the *Cypripediums*, the most noteworthy is *C. Sanderianum*, which has long, broad, drooping petals, and is very distinct in its reddish brown colour; but of all the Orchids brought into notice during the year, one of the most striking was *Catasetum Bungei*, which, however, was not certificated, as it flowered too late for the December meeting of the Royal Horticultural Society. This also has been illustrated in this Journal (p. 563, December 23rd), and as the description appeared so recently it is not necessary to repeat it, beyond remarking that the plant is one of the few *Catasetums* that possess any horticultural value, and the price of 50 guineas paid for the largest specimen by a firm of nurserymen will indicate the appreciation in which it was held.

Next in numbers to the Orchids come the Dahlias, but there is a great difference in the totals—namely, twenty-six of the latter compared with sixty of the former; but this number shows that the Dahlia is very popular, especially the decorative, Pompon, and single varieties, for it is in these sections that the certificates were chiefly awarded. *Amaryllises* follow with fifteen varieties, great advances having been made in these. The size and shape of the flowers have been improved, the colours enriched and varied, and they have taken a prominent place amongst the best of ornamental plants. Messrs. J. Veitch & Sons have contributed most of these, but Mr. B. S. Williams has also added to the list some beautiful varieties, especially in the autumn-flowering section, of which we recently figured a group (page 433, November 11th).

Peonies came to the front in unusual numbers last year, about fourteen varieties being certificated, many of them forms of *Paeonia Moutan*, the Tree Peony. They can now be had in such varied tints, so fragrant and

handsome, that they are fast becoming favourite garden plants, and there seems to be a future of considerable popularity before them. Gladioli still keep up their reputation, and ten were certificated, some of these being of the *G. Lemoinei* section. Very interesting were the varieties of Hollyhocks which made their appearance, and they re-awakened hopes that the Hollyhock might once more be seen in gardens healthy and handsome. Green-house Rhododendrons, numerous as they now are, have increased by eight beautiful forms, the flowers of good size and clear distinct colours. They were Veitchian hybrids chiefly, and it is not surprising that these plants are steadily advancing in favour.

The Chrysanthemums and Roses of the year have been previously referred to at some length, but in numbers the former are increasing at an almost alarming rate, and we hear rumours of a flood of novelties to be poured into this country from the Continent during the present year. No doubt, however, these will be subjected to a rigid examination, and it will be necessary. Tuberous Begonias are well represented in the lists, but the great improvements that have been effected in the strains of seed render it unnecessary to name any but the most distinct, as from a packet of good seed varieties are obtained that a few years ago would have been unhesitatingly certificated.

Amongst other plants there is scarcely anything to note of special merit. It is curious that so few Ferns have secured honours, and ornamental-foliage plants generally were much less numerous than in previous years.

APPEARANCE v. FLAVOUR IN GRAPES.

THIS is a question which I think claims the attention of gardeners at the present time, especially those whose duty it is to supply their employers' table with first-class Grapes all the year round. Mr. Taylor's note of warning in a recent issue of the *Journal* is none too soon, for assuredly appearance without flavour is rapidly gaining ground. Why this should be when both can be had together is rather difficult to understand. Our best black Grape, the Black Hamburgh, is being sadly neglected, in fact driven out of cultivation by showy bad flavoured varieties.

A few years ago the Black Hamburgh class at exhibitions was by far the strongest one, and the smallest societies had a separate class for it in their schedules; but so much has size and appearance gained in favour with gardeners and judges, that I question if good Black Hamburghs shown in a mixed collection of Grapes now would not be passed for something more showy and imposing. It is rare now to hear of a really good dish of Black Hamburghs at any show, or to see a good house of it noticed in any of the horticultural papers. Yet it is not difficult to cultivate; it certainly requires more than ordinary care in some places, but, generally speaking, it is one of the earliest of Grapes to grow. In my opinion overcropping is the cause of failure and ruin of the majority of Black Hamburgh Vines. Gardeners are not always to blame in this case, as many owners of Vines like to see a large crop and do not understand so well as the gardener the injury it does to the Vines, although it is not apparent at the time, so, to please, more bunches are left on than should be, and in a few years the Grapes commence shanking or refuse to colour. Black Hamburgh very soon suffers from overcropping, but with care and moderate cropping it will last as long as any.

Madresfield Court comes next, and, like the Black Hamburgh, possesses both appearance and flavour in their highest order. It is truly a grand Grape, and I am pleased to see its cultivation is being extended; some have found a few difficulties in growing it, but I think they are easily overcome.

These two varieties can be had in good condition from May to the end of October, or longer if required. Muscat of Alexandria is in prime condition at the end of September. This is essentially the Grape for the festive season, and will last well into the new year. About February Lady Downe's attains its proper flavour, and can be kept in good condition until the end of May. Here, then, are four varieties of first-rate flavour and appearance, which every gardener with the means at his disposal should be able to grow

successfully, and which can be relied upon to give a supply of Grapes all the year round.

There are many other Grapes for which room can be found in large gardens that are pleasing and useful for variety, but they are all far behind the above-named. Buckland Sweetwater is worthy of more extended cultivation. When well grown and of a clear amber colour it is a handsome Grape and of good flavour. Why really good dishes of this Grape should be passed for dull-looking Foster's Seedling or little lumps of Duke of Buccleuch requires, I think, some explanation.

Mrs. Pinee is a good variety and comes in very useful at Christmas if well coloured. Of the four showy black varieties (*Alicante*, *Alnwick Seedling*, *Gros Maroc*, and *Gros Colman*), which are now first favourites, *Alicante* is the best flavoured and *Gros Colman* is the worst. I once sent some fine *Gros Colman* on the table for a special luncheon. They were much admired and praised for their appearance, but when it came to tasting they were very disappointing. My employer asked me a few days after what variety it was, and when I told him *Gros Colman* he said, It was a "gross impostor." However admirers of this Grape may try to make up for its want of flavour by pointing to its grand appearance and cropping qualities, the fact remains the same, it is not fit to eat. One of the greatest temptations to grow these large-berried varieties is to keep up to one's neighbour whose Grapes perhaps are pronounced by visitors to the gardens as finer than yours, and no amount of explanation that it is a larger-growing variety will convince them that this is the cause of the difference in size.

I am not discussing this question from the market growers' point of view, for they must study that which brings them most profit; but to gardeners who have to maintain a daily supply of Grapes I would say, Consider well before you plant these inferior varieties extensively. One or two Vines of each variety are quite enough in a large place. They may be fashionable now, but in the long run the best flavoured kinds will find most favour.—A. BARKER, *Hindlip*.

A FEW lines by way of response or supplement to the article of Mr. Taylor, page 559, may not be out of place. As it is possible that to some readers these remarks may appear somewhat antagonistic to Mr. Taylor, let me here add that, having seen his excellent Grapes, partaken of his hospitality, and enjoyed his private correspondence, I hope he will pardon me for stating my ideas even if they do not quite agree with his. With regard to Black Hamburgh and *Alicante* in July, there cannot be two opinions if sweetness is to be the test, the first-named having a thin-skinned sweet berry and is ready for eating first. Yet even at that date well-grown *Alicante* will be preferred by some. Black Hamburgh is very well at first, but what have you in this Grape, no matter how well grown, beyond sweetness? In *Alicante*, though I am well aware it has watery pulp, yet even in July there is more real flavour. With regard to the selling price of the two varieties correctly quoted, I have no hesitation in saying that Black Hamburgh at 1s. per lb. will require very careful handling by the shopkeeper to make a fair profit. This is a very wasteful Grape, as it must be sold quickly; even then too often many berries are damaged or decayed. In private families the same remarks apply if they have to go a long journey. In *Alicante* under the same conditions I do not say they are improved by keeping, but I do say they can be kept as long again after being cut; there are in both a better saleable condition, and also better for eating.

Indigestion and acidity. If fruit is sound I should not be afraid of the former, and it is this very acidity which to my palate improves the flavour. I am, of course, dealing with fruit that is sound of both varieties, not shanked berries. Tastes differ, but to compare them in February, or rather to have Black Hamburgh in the list at all, that to my mind is ridiculous. I must have (without any pretension to a special palate) more than "bags of sugar," and this is what Black Hamburgh is, even at Christmas, with September-ripened fruit.

Alnwick Seedling when grown in a late house—that is, Vines started gently in March, and the Grapes ripened for October, is then far ahead of any Black Hamburgh I have ever tasted, and certainly better in appearance. I question very much if its equal is to be found at this date. I admire it much, though here again its acidity—not sourness—comes to the front, and there is also such body in it. I was particularly pleased when at Chiswick the first week in December to see it in such good condition. Mr. Barron spoke very highly of it for flavour. I cannot just now place *Gros Maroc* in the front; but for a change, and if Black Hamburgh is presented daily on the table without a change it will not be appreciated, *Gros Maroc* will come in, though I admit it is a coarse somewhat rough-flavoured Grape. This variety grafted on Black Hamburgh is very much improved in all respects, including flavour.

I dare next September, all being well, put a sample of Alicante grafted on Black Hamburg, and also the same grafted on Buckland Sweetwater, with every confidence, by the side of Mr. Taylor's Black Hamburg ripened at the same time, sending them on to you, Mr. Editor, and leave not only the Grapes but also the results in your hands.

As my late Alicante on their own roots are started late, these are not in the field for flavour until after Christmas, and the nearer Lady Day the better. Experienced growers have during the last few days confessed they never knew such flavour to be developed in Alicante and Gros Maroc. Alicante on Buckland Sweetwater for its very sweetness at this date would not suit me, but in September it was prime. A few weeks ago I saw a very large number of Alicante being grown, nothing else being done. The Vines were forced, and the Grapes sold in July, for the simple reason that they pay so much better than Black Hamburg, and as the grower expressed it, if flavour was not there they could not hold their own in the open market so long. I tasted Alicante from its own roots, well grown, and ripened at the end of September, and these were good, just right for using the last week in November. Here again the later ripened fruit of the same variety in other houses for keeping was not useable if flavour is the question.

Gros Colman I have left till now for a few lines. This can be had with fair if not good flavour in September, if ripened and coloured well, but cannot be at its best until February, March, or April. Perhaps some will say then it has no flavour. Without putting up a very high standard in this respect for the variety, I can only say that the better this Grape is grown the better the flavour. In March I prefer it to Alicante. At the present date Gros Colman on Muscats is very good indeed; this, too, with being late ripened. Here is a hint for private growers, who, desiring fine fruit, yet wish for flavour, and this is one of the best for packing. Being very much interested in the flavour of Grapes, I would like to know from some of our scientific friends the composition of Grape skins. I cannot think that the one analysis would agree for all varieties. Just now I am inclined to believe that Alicante skiu would contain more flavour and nutriment than any, unless it is Alnwick Seedling. Then, again, a red or badly coloured berry surely cannot compare with a black berry. The "red" Grape, provided it is not shanked, is always much the sweetest, and again, this red berry is not fit for keeping.

I now come to Muscat of Alexandria, and here the less I say the better. I have never before seen it stated in print that it is cultivated for its appearance. I should suppose the flavour is of the first importance. Comparing the selling prices of Golden Queen and Muscat sent to market at the same date, I may remark that the first-named was very fine in berry and of good colour, the latter about the worst I ever cut; they would not have been cut had they been in good condition, yet these poor Muscats realised double the price of the Golden Queen. In this case it must have been flavour, and this was good I know. In 1886 Muscats were as good as Black Hamburgs were faulty. How is this? I cannot suppose for a moment that as a body of intelligent progressing men, that we are losing our skill; if so, the sooner we wake up the better.

I shall only be too pleased to see others record their opinions on these matters. No doubt in different localities varieties will differ, but a balance can be drawn, and much instruction gained. It has just occurred to me that no doubt the flavour of any Grape is influenced by the amount of potash contained in the skin, and possibly iron; lime cannot count here, I think, or phosphoric acid. —STEPHEN CASTLE, *West Lynn*.

ROSE-GROWING FOR BEGINNERS.

(Continued from page 10.)

PREPARATION OF THE SOIL.

THE first thing to be considered in any attempt at Rose-growing is the preparation of the soil. Roses do best in a heavy deep loam, or loam resting on clay; they do worst on a poor dry sandy soil resting on rock or shingle.

Let us suppose we have a heavy clay soil, undrained, where the water lodges in pools, and where after a day's rain you drag a considerable portion of the property after you attached to your boots. Provided your air is pure, and you get a fair amount of sunshine, on this land you should grow splendid Roses. All the land wants is draining, trenching, and manuring. If you intend making detached beds on a lawn to plant your Roses in, you may dig out the soil about 3 feet deep and put in about a foot of stones and broken bricks, laid edgewise, with very small stones on the top, laying on the top of this sods face downwards, or small branches and twigs to prevent the fine soil from washing down and choking the drainage. Then replace the soil, working in at the same time lots of good old manure and old turf.

But Roses are best grown in rows as in the nurseries, and in this case the best way is to thoroughly drain the whole of the land with stone or pipe drains, put in 20 or 30 feet apart, and from 2 feet 6 to 3 feet deep, and laid out so as to get as much fall as possible. If the piece of land be extensive it will be found cheaper to engage a professional drainer for the work. Presuming you make the detached beds and throw out the soil as advised, no further trenching would be necessary before planting, but it would not be advisable to replace the original soil if anything better could be obtained. But if it be decided to plant the whole piece of land as suggested, it will require to be trenched or dug very deep, and the manure worked in as the work proceeds. If the land be very heavy, perhaps about a foot of loam, and below that dense yellow or blue clay, sand, road scrapings, charcoal, wool, hair, refuse from tan yards (some people recommend ashes, I do not) or anything of a like nature that will make the land lighter or more porous should be added if they can be obtained. There is one other thing which acts more energetically, and is of more value on heavy land than any other material—in fact it comes next in importance to draining—and that is lime. It is such an important factor in Rose-growing that I propose to devote a short section to the consideration of it. The action of quicklime on heavy land is to make it more open, more friable, and consequently easier to work, and you cannot well have too much of it.

Although the grandest results, I believe, are got from heavy land, there is no doubt more difficulty in preparing the same, and to do the thing well some little time would be required. First, the draining would have to be done, and dry weather in the early autumn would be the best time to begin it; at the same time a good dressing of hot lime might be strewn on the surface with advantage. After the draining was completed the land might be trenched, plenty of quicklime being worked in in the process. It would be, no doubt, very advantageous to mix in the manure as the work proceeded, but this is not advisable, as the hot lime coming in contact with the manure would decompose it too quickly, while on the other hand, if mild lime were used, it would not produce the mechanical effect required. It would be better therefore to hold back the manure until the time of planting, or even until afterwards, if the manure be fresh and hot. In this case the best plan would be then to strew it on the land, and the winter rains would make it fit for digging in in the spring.

I said early autumn would be a good time to begin this work, but if possession of the land be had in the spring, I should prefer to crop it with Potatoes or other vegetables, when the knocking about the land would get would be very beneficial, and it would be in grand condition in autumn for planting the Roses.

On a light soil draining is rarely requisite, except the land lies low or is very flat. Here all our efforts must be directed to making the soil heavier, and retaining as much moisture as possible. If detached beds are proposed on a light soil it would be necessary to dig out the soil to a depth of about 3 feet, and put in at the bottom about a foot of clay, refilling the bed with the best soil obtainable, in which may be thoroughly mixed a fair amount, say one-third of the whole, of well pulverised clay, together with some good old manure and chopped turf. In preparing a piece of light soil, it should be trenched 2 feet deep if the under-soil is good enough, but it would be no use burying good soil for the purpose of bringing a lot of rubbish or shingle to the surface. If the land is too shallow for trenching we must be content to dig as deep as we can and be as liberal as possible with our manure. On this soil cow manure is better than any other, as it holds the water longer, but care must be taken not to allow it to come into contact with the roots of the Roses while it is in a green state or it will rot them. If the land is deficient in lime it may be added in a mild state at any time. It is not advisable to use quicklime on any light soil.

Nothing answers better on a light soil than clay, the difficulty being to get it worked in well and thoroughly mixed with the natural soil. The only plan is to keep the surface of the soil strewed with it summer and winter, and when it is well pulverised, to dig it in. Buried in great lumps here and there it will be of little use. Keep on doing this, and trenching or digging deep occasionally, and the land will soon show signs of improvement. It is very difficult to get old cow manure fit for digging in with Roses at the time of planting, so one has to be content generally with it in a fresh or green state. On a light soil all manure is best added in the spring time, as otherwise winter rains and snow wash so much of its virtue away. A good plan is to lay the green manure thickly on the surface after planting (not allowing it to touch the stems of the plants). The winter will mellow it, and it may be safely dug in in the spring.

On heavy soils winter manuring may be practised, these soils being more retentive, and consequently not so easily deprived of their contents; horse manure, too, being most suitable, and decaying much more quickly (because of its heating so readily) may generally

be obtained in a state which will not damage the roots of the Roses if it should come in immediate contact with them.

It is not easy, on any land, to make the soil too rich for Roses. There are some happy individuals who are so situated that it is only necessary for them to plant their Roses in the original soil, and without any manure being added, to reap a rich harvest of flowers. But this can only be possible on a virgin soil, and for a short period, for no matter how well filled a purse may be, it only requires time to empty it, and the same remark applies to land from which crops of any kind, be they Roses, or Turnips, or anything else, are removed year by year, without anything in the shape of manure or plant food being added or returned to it.

If the soil on which it is intended to plant Roses be good old pasture—that is, virgin soil, for the first season nothing will be necessary beyond a dressing of farmyard manure; but when exhibition is intended, or where the very best results are looked for, some more concentrated stimulants will probably be required. These, and the usual methods of applying them, will be referred to later on.

It happens sometimes that a piece of heavy land, from its situation, cannot be drained, and in this case the only way to get over the difficulty is by growing the Roses on raised beds. These should be constructed to have not less than 2 feet of soil. The walls or sides may be made of brick or stone, or turves (sods), or larch poles driven in side by side, and if the beds were large, drains would have to be put in above the level. If the beds were small, 6 or 9 inches of broken bricks or stones would be sufficient, these to be spread over the bed, or space intended for the bed, as a foundation, before the soil was put in. Holes would require to be left in the walls at intervals along the base if mortar were used, otherwise in winter the bed might become little better than a dam or reservoir, in which the roots of the plants would perish.

While I was writing these remarks, I was asked, "What is loam?" and as I am writing for beginners, I will endeavour to explain the term. Loam, then, is the top spit of a pasture; for choice, a pasture which rests on clay. Johnston, in his work on agricultural chemistry says, "A mixture of sand and clay with a little lime I would call a loam, and if much lime were present I would call it a calcareous loam." Loam, if good, is generally of a rich brown colour, sometimes yellow, soft and silky to the touch, and should be full of fibre, the dead and living roots of the grasses, &c., which formed the pasture.

I spoke of replacing the original soil in detached beds with something better. It will not be out of place here to give my idea of what a Rose soil should be.

One load of top spit from clay pasture,
Half a load of old farmyard manure,
One barrowful of old slaked lime,
One barrowful of small charcoal or wood ashes,
One barrowful of half-inch bones.

—D. GILMOUR, JUN.

(To be continued.)

GROS COLMAN BERRIES.

DISCUSSIONS are beneficial so long as they remain reasonable and do not drift away from the original subject. I have made some careful measurements of Grape berries, which I send to show the absurdity of the comparisons some of your correspondents make in connection with the Gros Colman berry, fig. 84, last vol. To illustrate the matter plainly I will take first a berry of Mrs. Pearson, 1 inch in diameter, 3 inches circumference, seven-eighths of an inch cube. Secondly, Lady Downe's, berry $1\frac{1}{4}$ inch in diameter, 4 inches in circumference, and exactly 1 inch cube. Thirdly, the Gros Colman, fig. 84, $1\frac{1}{4}$ inch diameter, 5 inches three-sixteenths circumference, 1 inch three-eighths cube. Now we find it will take exactly two Mrs. Pearsons to make one Lady Downe's, and a fraction more than two and a half Lady Downe's berries to make one of our Gros Colman. Or to make it plainer still; it would take fifty-two 3-inch berries to make twenty-six 4-inch berries, and a fraction more than twenty-six 4-inch berries to make ten of our Gros Colman berries; yet, according to some of your correspondents, these ten would only make 13 ozs.; but it is pretty generally known that Grapes lose weight after the fall of the leaf, especially where much fire is used, or when the Grapes are cut and bottled; but if cut in November, as was our Gros Colman, they would not be far short of the 16 ozs., as before stated.

One good turn deserves another, and as I have taken some considerable trouble for the sake of this discussion, I hope "D. B." will say where berries the size of fig. 84 can be found. Gros Colman does remarkably well hereabouts, and I quoted Mr. Elphinstone's success simply in corroboration of my statement, but if there are finer Grapes somewhere else I shall be glad of the opportunity of seeing them. "D. B." does well to keep his name in the shade, as some of the unemployed would ask him to be satisfied with the handling of 1000 bunches per day, as he must sadly monopolise the handling of Grapes in this country at the rate of 2000 bunches per day.—J. H. GOODACRE, *Elveston*.



PEAT FOR ORCHIDS.

NOTICING your correspondent, Mr. Bardney, in last week's paper (page 41) questioning the value of the tough old rhizomes in Orchid peat, will you permit us to express the conviction that these are really detrimental to the quality of the peat, and also injurious to the roots of the Orchids when in contact with them. We are able to give two reasons for holding the above opinion, and both extend over a range of twenty years' experience in handling large quantities of Orchid peat. In the first place it is not difficult to observe that the old rhizomes are hollow or partly so, as the pithy cells shrink when drying and leave a vacuum within the outer bark of the rhizomes. These hollow spaces with the decaying pith act in the same way as pieces of sponge, the materials themselves being slow to decompose, and the quantity of water they absorb stagnates in them. Hence it is a sure source of fungoid growths, besides being otherwise an obstacle to active and healthy root-action. In the second place the demand from experienced growers of Orchids for bracken peat, "tough as a mat, but free from old root-stalks," and the fact that we have never yet had a complaint regarding such peat, are sufficient reasons for forming a conviction that the old rhizomes are not liked by Orchid growers. Orchid peat must, we take it, be full of fine tough fibre, free from earthy and peaty soil, light and porous, and free from old tough roots. Peat moss similar to the peat moss litter has been tried for Orchids, but users of it have found that it held too much stagnant moisture, and therefore prevented the necessary action of the air. The value of high-class peat depends on two things—freedom from old rhizomes and toughness of the fibre.—W. WOOD AND SON.

VARIETIES OF LÆLIA ANCEPS.

ONE of the best of the winter flowering Orchids is *Lælia anceps*, and now so many beautiful varieties are in cultivation it is easy to make up a charming group with them. The long scapes appear very graceful arching over other Orchids and Ferns, and a most pleasing effect can be produced in a house by a tasteful arrangement of this kind. Baron Schröler has an admirable collection of varieties, and the flowers he recently exhibited at South Kensington indicated how vigorously and well the plants are grown at The Dell. At the sale rooms during the past few weeks numerous plants of good varieties have been noted, and those with large well-formed flowers command substantial prices. *L. anceps Dawsoni* still keeps the lead for beauty of form, the breadth of the petals and the general substance of the flowers being remarkable. The pure white *L. anceps alba* will rank next in the estimation of many growers. *L. anceps Williamsi* has beautifully proportioned flowers, white, veined with red in the throat of the lip; and *L. anceps Pereivaliana*, which is tinted with purple, is another notable variety. Two of these at Kensington were selected for special honours—namely, *L. anceps Stella* and *Sanderiana*. The principal distinguishing marks of the former are, the broad Dawsoni-like petals, the lip veined with crimson, having a yellow ridge in the centre and tipped with crimson. *L. anceps Sanderiana* is somewhat of the same type, having very large flowers, the sepals and petals broad, the lip veined with red, yellow in the centre and tipped with red. There are many intermediate unnamed forms, besides the rich crimson or purple-coloured varieties, and it is not surprising that they are all such favourites.

ORCHID SALES.

THE rooms in Cheapside and King Street, Covent Garden, are crowded at almost every sale, and it is evident that the number of those who take an interest in Orchids, either as cultivators or purchasers, are still increasing. At one sale last week there were between seventy and eighty persons present, and a large proportion of these were purchasers. It was thought a year or two back that the popularity of Orchids was declining; this however is very far from being the case, as they are continually gaining fresh patrons and losing very few. Orchids are now recognised as useful as well as ornamental plants, and the florists are beginning to find their flowers almost indispensable.

GLAZED POTS FOR ORCHIDS.

THESE have been praised by some cultivators and condemned by others, and the old saw about "doctors differing" may be applied here. As far as my experience goes glazed pots are advantageous both to the cultivator and the plants. Stove plants, greenhouse plants, and Orchids, have often been seen thriving in glazed pots, and the labour saved in pot-washing in such cases is considerable. Recently visiting a gardening establishment where there was a large collection of stove and greenhouse plants and many Orchids, I asked what assistance the gardener had, and on being told, remarked that surely it was too little for such a quantity of glass and so many plants. "Oh," replied the gardener, "I could not manage if the pots required washing, but you see they are all glazed and give us no trouble."

Less labour is expended in watering plants in glazed pots. Then, what is uglier than a dirty pot? and unless washed at least once a fort-

night unglazed pots become unsightly. In many places pots are all washed once a week, and it may be said that in spite of the most careful handling on the part of the washers, the plants are often none the better of the washing day. In the case of many Orchids, that root down the outsides of the pots it is impossible that pot-washing can be carried out without some injury being done.

Some people may urge that glazed pots are dearer than unglazed ones, and so they are, but the saving effected in labour, and the cleanliness always associated with them, also the saving of much pulling about to the plants, and in the case of Orchids entire avoidance of root-bruising or breaking, more than compensate for any extra expense at first in connection with glazed pots.—S.

MUSHROOMS IN BOXES.

I HAVE pleasure in giving my experience in Mushroom culture. Let me preface my account by crediting that excellent treatise "Mushrooms for the Million," as the sole medium of my knowledge attained in the art of growing Mushrooms. My experience has been twofold, both of which have been under circumstances when one would have almost expected failure on account of the really miniature trials, and yet in both cases I can but believe I have been almost more than successful.

My first attempt was in the open, on the north side of a hedge and really beneath the same. There I made up (after a few turnings only) a very small ridge in August, comprising perhaps not more than four wheelbarrows full of horse droppings. This ridge speedily rose in heat to 120° and upon declining to 80° an inch below the surface. I spawn all as directed and did the et-ceteras, following closely the instructions in the manual. In due time Mushrooms were pushing through in all directions, and I have gathered from time to time, even to the present, what I consider from size of bed a fairly good crop; indeed, but for the trouble of slugs the product would have been excellent.

My second effort lay in the direction of boxes kept in my cellar; the sizes of which are scarce 2 feet long and 1 foot in

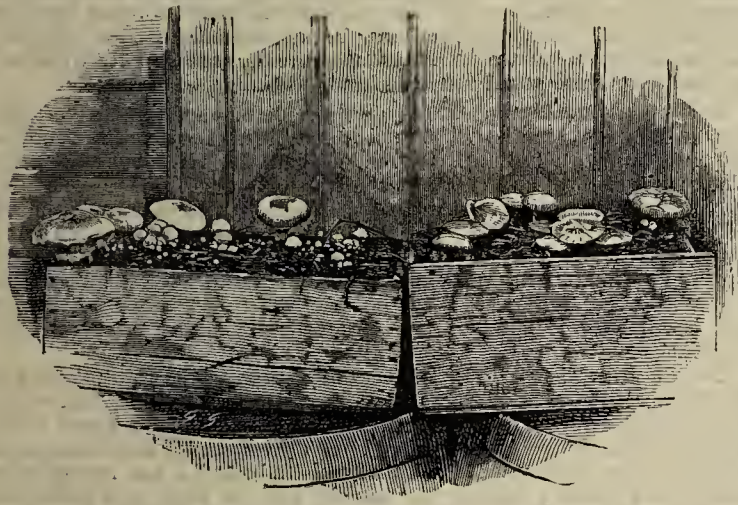


Fig. 10.—Growing Mushrooms in boxes.

width. These (three in number) were filled with fresh droppings, without any preparation, beaten down firmly, and duly spawned at the above quoted temperature. They have been in bearing over two months, and some hundred fine and perfect Mushrooms have been gathered from the same, some of which have weighed 4 ozs. At the time of writing, with the thermometer at 42° in my cellar, one of the said boxes is quite a picture; indeed, bunches of a dozen fine Mushrooms have gladdened the eyes of the amateur grower as the product of these tiny hotbeds. As a covering to these I have used oat husks, and the Mushrooms have in consequence been most beautifully clean with bright salmon-coloured gills, milky white exterior, and of delicious flavour. I have another large box, which I have spawned, and at the surface of which I have kept the temperature for three weeks at 60° to 70°, and in regard to which I have no doubt as to the issue. I should certainly, from the experience I have gained, be adverse to more than a few turnings, when the bulk of material is small. With given opportunities I hope to make further trials in this culture, and have little doubt of failure if I faithfully adhere, almost to the letter, to the instructions in the manual above quoted.—T. FOWLER, 5, Brighton Road, Cheltenham.

We send by this post a photograph of Mushrooms grown from our spawn by Mr. Frank Ford, gardener, at the Frindsbury Brewery, Strood. You will see the form they are grown in, and they may be grown by almost anyone in any cellar. These boxes are made up about every month, and they afford a regular supply of Mushrooms, except in the very hot weather, when of course they do not succeed very well. We were at a place the other day in the midland counties, and to our surprise a man asked whether Mushrooms could be grown in a room, and we replied that we thought it would be a very peculiar place to grow them; but he showed us in his dining-room under the table a box quite as well done as shown in the enclosed photograph, and there was no unpleasant smell from the manure. As they can be grown so easily, everyone should try and produce them.—WILLIAM CUTBUSH AND SON.

[A similar instance of growing Mushrooms "under the table" in a

dwelling, as well as in a cupboard in the room, is recorded on page 101 of "Mushrooms for the Million," the crops being quite as good as those engraved from the Brewery photograph. Good spawn is essential to success, and in both the cases alluded to it was undoubtedly good, though obtained from different sources. It is only right to say that no particular brand is specially adapted to this or any method of culture, and the best of spawn fails to produce satisfactory crops in the absence of good manure and management.]

ROOT-PRUNING.

IN the Journal of December 23rd the following question is asked by an "Old Soldier," Has root-pruning done the most good or the most harm to the fruit supply of this country? No doubt the question is important and suggestive, as well as interesting, to all fruit growers. Of the value of root-pruning in order to check the too-luxuriant growth of trees and induce fruitfulness there is no doubt, as myself and others have often proved; but I am not aware of any direct or reliable evidence whereby we can decide the main part of the question. If I state my opinion upon the wide view of the question, it is that root-pruning has not as yet substantially and generally improved our fruit supply, for two reasons. The large plantations and orchards of this country from which our large supplies come have not as a rule been subjected to that treatment, because it would not pay; the plan adopted, and which is considered more economical and safe is, when a tree proves barren or partially so that cannot be relied upon, it is soon taken out and another one planted, the grower's aim being to have large, well-developed trees, so as to produce both quantity and quality, and to root-prune large trees would be in his case a waste of time and labour, with a doubtful result. Cutting off the top and grafting would be considered a more practical and speedy operation. I am, therefore, of opinion that in their case, if root-pruning is practised, it has not proved of any practical and profitable advantage. I should be pleased, however, to hear that my opinion is not well founded.

I now come to professional gardeners, amateurs, and other small growers, and I believe it is to them we must look for a more decisive answer to the question. Probably they have studied the system carefully and carried it out practically according to the reciprocity of action between root and branch, the result being an increased supply and an improvement in quality according to soil and situation. But the amateur and small grower are placed at a disadvantage; their knowledge of how, why, and when root-pruning should be done is as yet imperfect; these questions will be solved by time and close observation.

It has been too much a custom for many among them to root-prune trees off-hand, whether they wanted it or not, and in such a clumsy, impracticable way, that the operation is an abuse of the system instead of a benefit to the tree. This, I am glad to say, is more exceptional than general, but when a more practical knowledge of root-pruning and its advantages become generally known and carried out, we may then be able to get at some reliable statistics as to the influence root-pruning has upon our fruit supply, and I venture to prophesy it would be decidedly in its favour.—THOMAS RECORD.

THE ROYAL JUBILEE AND THE ROYAL HORTICULTURAL SOCIETY.

NEARLY every class of the community are doubtless anxious to mark in some form the Jubilee of Her Majesty. Many suggestions have been mooted to hold exhibitions and raise institutions that shall stand out as monuments of loyalty to the Queen who has won affections of her subjects. Horticulturists are no less loyal than any other portion of the community, and I do not doubt that they too would be pleased to carry out some project that would prove of benefit, not only to the present, but future generations.

Many ideas have been discussed to commemorate the year of Jubilee in the provinces by gardeners and associations to which they are connected, but nothing definite has been settled on a large scale. Neither do I think it possible that anything worthy can be accomplished by independent action in any one district. This is the case in the provinces, but it may be different in and about the metropolis. London seems to be the heart of horticulture, and something substantial might there be achieved without the aid of those who dwell in the provinces. But this is neither wise nor desirable, for efforts to produce any work or carry out a scheme of magnitude would be more or less paralysed and narrowed by limitation; but with the united effort, energy, and perseverance of horticulturists throughout the country a great undertaking may be accomplished, and one that could be pointed to with pride in years to come.

Horticulturists as a rule are slow of action, but when they see clearly the object before them they rise to the occasion and respond with energy and will. There is unmistakeably a kind of freemasonry amongst gardeners, for they are always willing to lend a helping hand to any good work, whether to assist a needy member of the craft or a widow that has been

left destitute, or the establishment of institutions that have for their object the advancement of the profession to which they belong. I have not the least doubt that on the present occasion, when the object to be attained is set forth, and a plan of action decided upon, plenty of willing workers will be found, and the spirit that has characterised other efforts in the past will not be wanting. The leading article in the *Journal* (Jan. 13th) gives the first suggestion of a national character—namely, as to the institution of a “home” for the Royal Horticultural Society. It is ably advocated, and if carried out might be the means of reinstating that Society in the honourable and useful position it was designed to fill. Of late years its usefulness has been fettered by uncertainty and liability. Fortunately it is now freed from the latter, and fresh quarters will have to be found soon. If the Council approve of the scheme brought forward in the *Journal* the question arises whether such a project would meet with general approval. I do not question the ability or foresight of the Council to decide such matters, but I think it would be better decided by them in conjunction with a representative assembly of horticulturists from the provinces as well as the metropolis. There might be a difficulty in getting them together to discuss the matter, but their views on the subject could be ascertained. I think this is requisite if the scheme contemplated is carried out, for the fact cannot be overlooked that the “Royal” is by no means popular in the provinces. For some years past it has been losing the position that it undoubtedly held when in a more prosperous condition.

The work and doings of the “Royal” are by no means generally known, even amongst gardeners, as they only have such information as from time to time appears in the *Journal* and other gardening periodicals. The reports that have been issued of late find their way only into the hands of the few, and thousands do not know from whom they can be obtained. The various conferences were worthy of that institution, and would if continued quickly bring it again into popularity. However flourishing the Society may be, it will always prove most profitable to those who reside within easy distance of London and can attend its meetings, conferences, and exhibitions. But independent of this, I think the “Royal” might have been raised to a more prosperous condition if it had widened its methods of procedure and management. From time to time the best and most successful institutions need reorganising if they are to do real service and keep pace with the times. If the Society is to be a great success in the future reorganisation is necessary on such a basis that horticulturists generally can aid in carrying out its work.

If it is decided to carry out the proposed scheme I think the Council would welcome suggestions and opinions, and therefore I think it just to say that I do not believe the foundation of a “home” will be favourably received in the provinces without a system for remodelling the Society as well or setting forth clearly its aims and intentions if restored to prosperity. I do not reflect the slightest discredit on the existing Council of gentlemen; on the contrary, I think they have clung to the Society in its enfeebled condition in a highly praiseworthy manner. The Council should be subject to re-election on some popular system the same as is the case with all other societies and institutions. The members might be greatly increased by lowering the fee, or by creating associates, say upon payment of one guinea annually, and members by payment of half the amount. The fellowship could remain as it is now. Some such scheme would add largely to the annual income, and if worked on economical principles and in harmony with every society in the provinces it could not fail to become a most useful and popular institution.—W. B.

IN reference to the proposition of a “home” for the “Royal,” no doubt it is a pressing necessity, but whether it is the most important “public want” is an open question. However necessary a “home” for the “Royal” may be, there are matters of even wider importance that are worthy of consideration. The first of these—and its importance will not be questioned—is how to provide employment for our surplus stock of gardeners. There are hundreds of able, intelligent, and willing men who need work with a fair wage until the approach of better times, when something more lucrative might turn up for them. Could not some experimental garden be established, or some establishment formed for the culture of fruit, flowers, and vegetables, the produce to be sent to market? Land could be rented or bought in a suitable locality at a moderately cheap rate. The money only would be wanting, and if any such scheme was advanced that would be forthcoming, an appeal for such a worthy object could not well be resisted.

When the article of the *Journal* was shown to a prominent horticulturist he remarked, “A home for the ‘Royal’! Far better raise a home for old and disabled gardeners in poor circumstances.” This is by no means a bad idea, for if endowed many an unfortunate man might be sheltered and cared for. If £20,000 or a larger sum was raised, and worked in connection with the Royal Gardeners’ Benevolent Institution, with or without the “home,” a large amount of distress amongst aged gardeners might be prevented that the Society in its present condition is unable to cope with. If this could be realised it would be a worthy monument of Her Majesty’s Jubilee, and one that could be pointed to with pride and admiration by all horticulturists.—ONE IN THE PROVINCES.

If there is one proverb more than another which had need to be applied to the Royal Horticultural Society it is “Let bygones be bygones,” for in truth its history of recent years has been a sad and

humiliating one; in fact, ever since the day it became associated with the South Kensington scheme, for it is as useless to talk about what might have been the case as to ask what might have been the course of events had Cleopatra’s nose been half an inch longer. When one considers the money that has been spent, the bickerings that have taken place, the utter disregard of public feeling and of the interests of horticulture that have been too often displayed in past years, we might well wish that all could be forgotten. It is of no use calling these things to mind save to point to this, that from one cause or another the Society, in this the Jubilee Year of Her Gracious Majesty, is in a most critical condition, and one that calls upon all true horticulturists to ask themselves, Can anything be done? and I, for one, cannot but feel thankful that the honoured Editor of the *Journal* has broached the subject in so true and loyal a manner as in a recent *Journal*. If anyone has a right to speak and write upon it he has, for we cannot forget that when everything was at sixes and sevens some years ago, he, with great self denial, undertook, in the midst of his manifold engagements, the duties of the Honorary Secretary, and so infused into the horticultural world, who fully confided in him, an amount of confidence in the Society that it sorely needed at the time, and which up to that time it had not enjoyed.

It is, I think, undeniable that one great cause of the Society’s difficulties has been the presence in it of two conflicting elements; these were the Horticultural element and what may be called the South Kensington element. The former of these desired to regard it as simply for the benefit of horticulture, grudged very much the expenditure on making the gardens into a place for lawn tennis, and a sort of square into which nurses and babies might be turned. Then the South Kensington element regarded it as especially designed for those who lived round about, to whom it might be a fashionable lounge, or a safe place for their nursemaids and children, free from contact with the outside world. The Council in adjudicating between these two opposing parties had a difficult task to play, and no wonder that failure was too often the result. It would seem that this latter element is rapidly disappearing, the greater part of the gardens will most probably be appropriated by the proposed Institute to commemorate Her Majesty’s Jubilee, and so the South Kensington subscribers are rapidly withdrawing, and with them go, of course, a large portion of the funds.

It is stated that a proposition is to be made by the Royal Albert Hall Corporation to acquire the Conservatory and the upper part of the gardens, and open both as a place of amusement, and the idea has been entertained of somehow connecting the Royal Horticultural Society with this scheme, but surely anyone can see what a miserable and undignified position this would be. The scheme is for many reasons considered by the best judges doomed to failure commercially, and with the new place of recreation what promises to be a success at Olympia this would be quite unnecessary, and we must only hope that some better plan may be devised if the Society is to be still connected with South Kensington.

The question is asked in the leading article of the *Journal*, on page 25, whether something may not be done in this the Jubilee Year of Her Majesty, and whether organisation should undertake it. There is one body which, although its numbers are not great, is yet most thoroughly representative—I mean the Horticultural Club, and I am happy to say that it has already taken the matter up. A large and influential meeting was held on Tuesday, the 8th inst., at which were present persons so well known in the horticultural world as the Hon. and Rev. J. T. Boseaven, Drs. Hogg and Masters, Messrs. Veitch, Rivers, Deal, Pearson, Drury, &c. The subject was most thoroughly considered. It was stated by the Secretary that the President of the Royal Horticultural Society was ready to meet the members of the Club and to hear their views, and arrangements were made for that purpose. After a long discussion it was determined to appoint a sub-Committee of the Club to consider the whole matter, so as to be prepared to lay their views before the President of the Royal Horticultural Society, and thus the utility of the Club has been abundantly justified. I have always felt that a time would probably come when it would form a very useful rallying point for all who were desirous of promoting the interests of the cause we have at heart. I shall not be betraying confidence when I say that the project which “our Doctor” has brought forward in the *Journal* was mooted by him at the meeting and met with a most favourable reception. Nor shall I be wrong in mentioning the direction in which the ideas of many present ran, and which will be brought under the consideration of the Committee. It was felt that the Royal Horticultural Society ought to be put upon a more modern and popular basis. The charge of exclusiveness has always somehow or other clung to it, and has been deserved I fear—at some times, at any rate. For this purpose it was suggested that the Council should be enlarged and reformed more on the lines of the Royal Agricultural Society, and that representatives of the business element in horticulture, in the persons of two or three leading nurserymen, should be placed upon it; that attempts should be made to connect all Societies throughout the kingdom with it, and that in so doing it should be acknowledged that the benefits of such connection should be mutual. This is natural, for it would tend to a better understanding and much mutual help. I know a good deal about Horticultural Societies throughout the kingdom, and I may say with confidence that I know of none to whom the Royal Horticultural Society is anything more than an empty name, or name synonymous to them (whether right or wrong), with wasteful expenditure, aristocratic reserve, and continuous blundering, and to whom the extension of the Society would mean nothing whatever. I may be pardoned if I say

how different to this is the position of the National Rose Society. All the Rose Societies throughout the kingdom are associated with it, and the mutual benefits are freely and fully acknowledged. The Society considers itself as under obligations to them, while they look up to it as a helper to them in any difficulties, and a counsellor to whom they may always with confidence refer, and whose decisions are to them as *law*. Their Secretaries are *ex officio* members of the Committee.

When any such plans are proposed it is immediately said, "But there is the charter!" I believe the general opinion of the meeting was, if so, let the Society be unchartered. What is the use of having a mill-stone about one's neck when freer action is required? It is a very voluminous production, and seems specially designed to keep the Society in swaddling clothes.

Another point was very clearly brought out, that the Society does not require big shows; the day for them is gone by as far as it is concerned. The Crystal Palace and Royal Botanic shows sufficiently in this respect cater for the public in the metropolis, and formerly these Shows were confined to London, now every town in the kingdom has them. Manchester exceeds in extent any that are held in London, then York, Leeds, Bristol, Bath, Taunton, and a host of others hold shows at various seasons, where collections as fine as any that are held in London are brought together; but while these were condemned, an equally unanimous and decided opinion was held that the fortnightly meetings ought to be continued and everything done to increase their interest. It was felt that they were the very backbone of the Society.

Such are some of the ideas that were freely put forth at the meeting of the Horticultural Club on the 8th inst. The Sub-Committee appointed will meet on the 1st of February, and afterwards their decision will be placed before the President of the Royal Horticultural Society, who has consented to meet them, and I think all lovers of horticulture and well-wishers of the Society will rejoice that these steps have been taken.—D., *Deal*.

AMONG the many projects spoken of for celebrating the Jubilee of Her Most Gracious Majesty, the one mentioned on page 25 is by no means insignificant, and my opinion is that the gardeners of Great Britain, and every person interested in horticulture generally, will do well to combine and carry out the scheme mentioned in a manner worthy of the reputation we hold. I say this advisedly, because no other country can compete with us in the way of horticulture.

We have also, as a class, many advantages which will assist in carrying out the above object, for as a rule gardeners are very loyal and law-abiding men. They have also, necessarily, a good education and intelligence; also they are easily communicated with by means of their own papers. But the question is now, Will the Royal Horticultural Society take up the subject, and carry out the organisation necessary for this object? Judging from what they have done in times past I feel doubtful on this point, unless the consideration of getting out of their only trouble at present by having a home provided for them by the horticulturists of Great Britain will induce them to undertake the work. If the Royal Horticultural Society will not move in the matter, would it not be possible that all the editors of the horticultural press to meet and choose a central Committee of Management in London, and then appoint a working committee that would cover the whole kingdom? The scheme cannot be successfully carried out without the co-operation of the horticultural press. When once we have that we are sure of every intelligent gardener and horticulturist in the kingdom being communicated with on the subject, and I am persuaded success would be certain.

I think the proposed building should not be handed over entirely to the Royal Horticultural Society, but (while affording accommodation to them when they required it) should, as a truly national institution, be under the management of independent trustees, and available, when not required by the Royal Horticultural Society, for all horticultural meetings, shows, &c., such as those of the National Rose, Chrysanthemum, Carnation, and similar societies; also for meetings connected with botany, horticultural trade, and other objects of a like nature; and if a home is provided for the Royal Horticultural Society, could not a guarantee be obtained from them that they would further the interests of horticulture in a more national manner than at present, and a stipulation be made that at least 75 per cent. of the officers and Council should be persons practically interested in horticulture—such as gardeners, nurserymen, and distinguished amateurs?

If the Imperial Institute is carried out as proposed it will contain much that is interesting to horticulturists. Would it not be advisable, and for the mutual interests of both if the National Institute of Horticulture was located in proximity to the permanent exhibition of the produce of the empire? I am ready to do all in my power to further the above object—that may be only like a drop in a bucket, but if everyone else interested will do all in their power we shall be certain of success.—W. H. DIVERS, *Ketton Hall, Stamford*.

IN your articles on the Royal Jubilee you mention that the Royal Horticultural Society needs a permanent home. I think if a Jubilee home is built it would be a good thing to have an hotel or club in connection with it for gardeners going to the London shows. Many young gardeners visit London yearly, and I feel sure if there was a place of the kind and a reasonable price charged for board and lodging, &c., it would prove very convenient to them and would support itself. It is very inconvenient for gardeners coming up with fruit, &c., and not knowing where to stay the night until the show ground is opened. I

hope something may be done in the manner suggested for the sake of the many gardeners that come up from the country.—H. PEWTRESS.

LOSS OF HEAT FROM HOT-WATER MAINS.

If your correspondent, Mr. A. Scott, will try hair-felt for covering his hot-water mains we feel sure he will find a great saving of heat. The hair-felt is usually sold in sheets, so that there is little or no difficulty in binding it round the pipes—that is to say, if there is sufficient room in the cavity to tie it with string. We should prefer tarred string for the purpose, which is more lasting. If the covering of the cavity is not watertight we should advise covering the hairfelt with roof-felt, which is not very expensive, or if plenty of good dry sawdust is at hand it might answer the purpose; but in our opinion nothing will answer better than the hairfelt, which we have used largely for all underground mains, and also mains from water tanks. We take the precaution to have our feed pipes from tanks to hot-water boilers eased with the same material. We have experienced cases where these supply pipes have been frozen and consequently split. Considering the exceptionally severe weather it will be advisable to see to such matters where any doubt exists.—A. O. W.

CHRYSANTHEMUMS FOR EXHIBITION.

[THE following paper, contributed by Mr. H. Shoesmith, gardener to Rev. Canon Hodgson, Saltwood, Hythe, was read before the members of the Lee, Blackheath, and Lewisham Horticultural Society, at their last monthly meeting held in the Working Men's Institute, Old Road, Lee.]

THE subject of this paper needs no introduction, for we now see the Chrysanthemum at the height of its popularity. There is scarcely a town of importance but what has its show, and to some of the exhibitions people go in thousands. I shall not attempt to tell the past history of our favourite flower, but shall confine my remarks to the culture of the three chief classes—incurved, Japanese, and reflexed.

In taking the cuttings, preference should be given to those strong suckers which throw up away from the main stem. After trying various ways of propagating them I find nothing to equal the plan I adopt, which is as follows:—Prepare a frame by filling it to about 1 foot from the glass with ashes or any rough rubbish at hand; on that place 6 inches of finely sifted leaf soil and sand; press the same to make it firm and neat, and then dibble the cuttings in as you would bedding *Caleolarias*. Keep the frame close and sprinkle on fine days, and try to prevent the cuttings flagging at any time. How long they will take to strike will greatly depend on the weather, but I do not trouble if mine are fit to pot off early in February. In severe weather the frame must be well covered up, and it is possible the cuttings may not see the light for some days together; however, no harm will come to them if care is taken to gradually inure them to it when the weather permits.

In February, then, the cuttings should be potted into small 60-sized pots, using light soil consisting of loam, leaf soil, and sand in equal quantities, afterwards placing the plants in a cold frame. Keep the latter closed for a few days, after which they should have plenty of air on all favourable occasions, so as to assist Nature in bringing them up hardy and short-jointed from their earliest stage.

As soon as the plants get well established in the small pots, which if all has gone on well will be about the second week in March, they may be shifted into 5-inch and 6-inch pots; the strongest growers in the latter size and the weaker growing sorts in the former. The soil I use for this shift is mixed in the following manner:—To two bushels of good yellow loam add half a bushel of leaf soil, a small quantity of finely broken charcoal, and about a peck of coarse sand. In potting, ram the soil firmly into the pots with a potting stick, replace them in the cold frame, and keep close for a few days; then, as before mentioned, give all the air that is possible consistent with safety from frost and cold cutting winds, till the second or third week in April, when they can be stood out of doors. It is well, though, to place them in a way that odd lights or anything used for the purpose can be put over them at night if there is danger of spring frosts.

Being in favour of getting the plants early into their flowering pots I commence about the second week in May, and as this is the most important shift I will recommend a good but simple compost. To three bushels of fibry loam, not too old, add half a bushel of charcoal and mortar rubbish in equal quantities, and three pounds of dissolved bones; mix well together and use in a state not too wet nor too dry. In potting, put an inch or so of quarter-inch bones over the crocks and ram in the soil as you would in potting an *Azalea* or an *Erica*; also place the ball low down into the pot to allow room for top-dressing. Nine-inch pots are quite large enough for the most vigorous; I would, however, strongly advise the use of smaller pots than those we commonly see used, 24's or 8-inch being the size for those plants in the 5-inch, and the larger size for those in pots of 6 inches diameter.

It may be of some use if I name a few very fine varieties that are weaker in growth and seem to require extra care in their successful cultivation. These are as follows:—Incurved—Barbara, Cherub, Lady Hardinge, Mrs. W. Shipman, Mr. Bunn, and Princess Beatrice. Among the Japanese—Criterion, Golden Dragon, J. Delaux, Marguerite Marrouch, Japonaise, M. Ardene, and Triomphe du Nord. I intend to try next year some of the most robust incurved varieties in pots of the smaller size, believing one can, with proper feeding, get the blooms large enough with the necessary broad petal and a more compact smoother flower.

We must now stand our plants in their summer quarters, which should be open on all sides, where the sun can have full play from its rising to its setting. Do not plunge the pots, which should be placed a good distance apart on a sound bottom of ashes or boards, so that the growth may be firm and short-jointed, with leaves like leather. It will be necessary to firmly stake each plant, and with a dew-like syringing morning and night all ought to go on well to the first bud, which will show from the end of May to July according to the variety. Allow each to break naturally, and select three shoots, cutting all others away from the main stem. Tie the shoots securely to the stakes as they grow, and from this time give the plants something stronger than pure water. There is much difference of opinion as to what should be given, but I think the simplest manures are by far the best. Soot water is the best of all; that made from cow or sheep manure good. Either of these, with a watering of clear lime-water once a fortnight will give better results than all the chemicals in the world.

There should be nothing to impede the growth of the selected shoots till they show the next, which is termed the crown bud, and this must be eagerly watched for. This is the bud which, from most varieties, produces the finest flowers; but if any show before August—with one exception, and that is the universal favourite Elaine, which with me cannot be had full and deep from any but the crown bud, and if it shows its crown at the end of July I would secure it—I would not retain them, but select the best shoots from this break; still clinging to the faithful three. There are several varieties buds of which should be taken early in August. These are J. Delaux, Boule d'Or, Grandiflorum, Golden Dragon, and Meg Merrilies, also the incurved Lady Carey. I would not take buds of Fair Maid of Guernsey, Hiver Fleuri, M. Ardene, M. Tarin, or Peter the Great even in August, or you may be rewarded with those ugly hen-and-chicken-like flowers, or mop-headed monsters which refuse to open kindly.

A few words on watering. This being, perhaps, the most important of all operations, requires at all times thoughtfulness and constant attention. Many think because the Chrysanthemum is a gross, free-growing plant too much water cannot be given, but I would advise great care even in the hottest weather. Given the best of soils, the position good, the potting performed in a proper manner, and everything favourable to good growth; sour the soil or kill the roots with too much water and progress is stopped. On the other hand, the plants must not be allowed on any account to become dry at the root, or progress again will be arrested. The happy medium is wanted, and to acquire it the plants must in summer time be looked over three or four times a day. Tap each pot, give water if wanted, and, if not, pass by till the next visit; this takes more trouble than time, but the former is not thought of by an enthusiastic cultivator.

(To be continued.)

CUTTING EXHIBITION FRUIT.

IN spite of many rather forcible protests the custom of cutting fruit at flower shows still finds favour among a few judges in this part of the country. There is something to be said for and against the practice, but when such men as Messrs. Coleman and Challis unhesitatingly denounce the partial disfigurement of a dish of fruit as being altogether uncalled for, the advocates of this method of arriving at a just decision had perhaps better modify their opposition. Although I must side with the well-known gardeners just named, I cannot refrain from pointing out that our Bath friends have one good argument in favour of their theory—viz., it is time-honoured. Early in the present century a German prince made a tour through England, Ireland, and France, and his letters published in 1832 have greatly interested me. With very few exceptions he has given a most impartial, and not always flattering, description of the manners and customs of the inhabitants of this country, and much that he wrote about Ireland and England, and Wales too, might well be republished at the present time. His description of different parts of this country I can safely assert is remarkably truthful, and altogether I am constrained to believe there must be some truth in his remark anent judging at a great flower show held in Dublin. He writes—"In the midst of the flowers, which formed a sort of temple, there was an enclosed space railed round for the fruits, which twelve judges ate with great gravity and apparent satisfaction. They must have

been a long time in coming to a decision, for rinds of Melons, Pears, and Apples, fragments of Pines, stones of Plums, Apricots, and Peaches, lay in mountains on the table underneath, and although the flowers were all gradually removed by the proprietors, I did not see that any fruits found their way out of this temple of Pomona."

I laughed heartily when I read this, and was obliged to conclude how very moderate, after all, were the four judges who awarded the fruit prizes at the summer show of a local society. These also, like their prototypes, appeared to thoroughly enjoy their employment, but if I remember rightly were not so grave as they might have been. It must not be thought I am writing this from any wish to disparage their ability to form a just opinion of the merits of the fruit in competition, as I have much respect for all them; neither am I a discontented exhibitor, as on two occasions where fruit was cut I unexpectedly won a first prize; nor do I wish to stir up a controversy on the subject, but take the present opportunity of hinting that our friend Mr. Challis might be expected to have more regard for time-honoured customs.

Next, to show how very impartial as well as inconsistent I can be occasionally, I may mention what happened at two autumn shows. At Bath prizes were offered for a single dish of Pears, any variety fit for the table, the judges being empowered to cut them. This the two good judges did not care to do, and out of a very great variety, or probably fifty exhibits, selected two dishes of Marie Louise. Some of the advocates of cutting the fruit when judging thought this a wrong decision on the grounds that the second prize Pears were over-ripe and gone at the core, one fruit also being thought to be of another variety. I was obliged to point out this was staged by me, and naturally had no fault to find with the decision. Two days later the same dish of fruit was shown at Exeter in a similar class, and in this instance the fruits were cut, with the result of proving my Marie Louise were quite sound and superior to all the rest. Query, ought I to grumble or not? Perhaps if the Pears had been cut at Bath I should have taken the first prize there also instead of the second, for they were good, as my Exeter friends could corroborate if need be. Exhibitors are hard to please.—W. IGGULDEN.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

THE following statement of the receipts and payments of this Institution (of which Mr. H. J. Veitch is now Treasurer) for the year ending December 31st, 1886, has been sent to us for publication:—

DEBTOR.				£	s.	d.
To Balance, 1885	...	...	...	...	...	...
" Annual Subscriptions	...	...	...	1311	2	0
" Donations at and in consequence of Annual Dinner	...	...	...	1486	16	10
				2797	18	10
" Advertisements	...	...	49	13	0	
" Collecting Cards	...	...	185	15	9	
				235	8	9
				3033	7	7
" Dividends on Stock	...	...	633	0	0	
" Interests on Deposits	...	...	22	17	3	
				655	17	3
				3689	4	10
				£4076	10	7

Stock in 3 per Cent. Consols, £21,000.

CREDITOR.				£	s.	d.
By Pensions	...	...	...	1950	0	0
" Secretary's Salary	...	...	...	160	0	0
" Rent of Office	...	...	...	43	15	0
" Furniture, Fittings, &c.	...	...	...	26	14	6
" Printing	...	...	...	130	0	0
" Advertising	...	...	...	3	19	0
" Stationery	...	...	...	21	12	7
" Book of Cheques	...	...	...	3	9	2
" Expense of Annual Dinner	...	...	...	60	14	8
" Postages, Travelling Expenses, and Sundry Petty Expenses	...	...	...	96	1	10
				2496	6	9
" Amount placed on Deposit	...	...	...	1200	0	0
				3696	6	9
" Balances:—						
At Bankers	...	...	...	368	12	5
With Secretary	...	...	...	11	11	5
				380	3	10
				£4076	10	7

Audited 10th January, 1887.

JOHN LEE,
J. F. MESTON,
JESSE WILLARD.

"VEITCH'S PARAGON" BRUSSELS SPROUTS.

I SHOULD like to say a few words in favour of the above variety of Brussels Sprouts. We have grown it for several years in preference to any other variety. It is of sturdy even growth; the sprouts, which are

thickly produced on the stems, are of medium size, very firm, and of delicious flavour when cooked. As this is the most useful green vegetable for winter use, it is important that a reliable variety should be grown, and those who give Paragon a trial will, I think, be quite satisfied with the result. Our quarter for Sprouts is always planted with Early Kidney Potatoes, 3 feet apart. The plants of Brussels Sprouts are raised in a cold pit, and afterwards pricked out in a sheltered place in the frame ground. When large enough they are transplanted between the rows of Potatoes, after these have been earthed up. The protection here afforded helps to establish them quickly. When the Potatoes are lifted the soil is worked round the stems, which keeps them firm against wind. —ARTHUR BASKET, *Hindlip*.

AN OLD LECTURE ON POTATOES.

BY MR. ROBERT FENN.

(Continued from page 580, last vol.)

POTATOES have been raised in England, from seed tubers received from New Zealand, for the purpose of testing an opinion that the produce from seed raised in those islands where the Potato disease is unknown might be free from its attack in this country. Experience, however, proved the contrary, as in three experiments the produce was as much affected as was that from English-raised seed.

It is difficult to prove a constitutional weakness in any given variety of Potato, its existence can only be implied by the fact of its failure; but the longer the cultivation of any variety of Potato is persevered in, the more certainly may we expect to see its vigour impaired. Hence the propriety of propagating fresh varieties from seed. The method of doing so is to gather the berries when fully ripe, and store them in tolerably dry soil, either whole or bruised; keep them in the earth secure from frost, and in March or April mix the mould and seeds in which they have been kept, and sow all together, then cover with light soil about a quarter of an inch deep. New varieties with small tubers will be the result in due time, and these preserved and planted the second year will prove if they are desirable new kinds or not.

As a point to be insisted on, always procure seed tubers for planting from soil of a nature directly in opposition to that of your own. If your land is a loam procure them from a gravelly soil; if clay get them from light ground, and so on. The quantity of seed required for a rood of land will vary according to distance of the sets and rows; when the sets are placed from 8 to 12 inches apart in rows at 2 feet intervals, about 5 bushels of small whole Potatoes will suffice, but when the bad practice of cut sets is resorted to, 6 bushels at least will be required.

Having thus spoken of seed I will return to the soil and planting. On the supposition that the trenching has been carried out, and when the ridges are in a frozen state about the beginning of February, break them up, fork it over again on the first dry and favourable opportunity that occurs towards the end of the month, preparatory for planting in March. In planting I adopt the Shropshire method—namely, stretch a line, and cast out the soil about 4 inches deep, with the back of the spade bearing against the line; the sets are then placed in the drill about a foot apart, the line for the site of the next row is then placed there, the spade applied, and the soil removed cast over to fill up the previous drill, and so on. It is a very expeditious plan. As regards the width the drills should be from each other, this must depend in a great measure on the nature of the soil. If poor land plant closer; if rich allow more room. I am a decided advocate for pure air, and manage to let it circulate as freely as possible amongst animals and vegetables under my charge. I allow 30 inches between the rows for main crops of Potatoes, but the soil is in very good heart.

According to my judgment, the custom of applying raw manure in the drills at planting time is wrong. When in a poor soil, manure is used to "make the most of it," in the rows only. The young plants grow very freely at first, because they then find abundant nourishment, and their roots extend rapidly, but they do so into a barren surrounding soil; and when the formation of the young Potatoes, and the advancing stage of the growth of the plants require an extra supply of nourishment, little is to be found. Manure is incapable of sustaining vegetable life unless decomposed and incorporated with the soil, and everyone knows that roots spread in quest of this nourishment; but when in its raw state it is merely laid in narrow strips along the centre of the drills, where it is least wanted, and away from the roots; is it to be wondered at that a poor crop is so often the result? In opposition to this practice, however, stands a worse, and that is where the land is altogether too rich, such as we often find in gardens attached to dwelling-houses in and near towns. The Potato there ruins to tops and roots with a vengeance, but it is at the expense of tubers; and how often do we see good-intentioned people go on adding more manure as a means for the end. For such gardens I recommend quicklime.

The preparation and use of lime was known to the Israelites some 2500 years ago, for we read in the 33rd chapter of Isaiah, "And the people shall be as the burnings of lime." Cato and Pliny, ancient Roman writers, also speak of the same process, and of the use made of lime as a manure. The use of lime as a fertiliser is not so much used I think as it should be; I know there is either ignorance, or prejudice, or perhaps both, against it. Light land requires it less in proportion than heavy soil, but all lands do require it, for there is not a fruit, flower, or pot-herb but contains a considerable amount of lime in its composition. Stiff clay land is rendered more friable by lime, and light soils are rendered more compact, in consequence of lime attracting moisture powerfully from the air. It is also very caustic, and when mixed with soil not only destroys insects but speedily reduces fragments of previous crops with which it may come in contact to mould. Besides, it acts on the inorganic ingredients of a soil, so as to render soluble many of the salts of the earth adapted for the nutriment of plants. Lime should never be mixed with dung of any kind, as it promotes the escape from them of their most valuable property, ammonia. Most people will smell out what that means the next time they pass an uncovered dung heap.

Land and plants, as well as mortals, however, can have too much of a good thing, and I know a farmer in Shropshire who went on burning and applying lime to such excess that it caused some of his ground to become caked like a brick, and threw it for a year or two, I may almost say, out of cultivation. I know from practice, on moderate loams, that 50 to 70 bushels of lime fresh from the kiln, and worked into the surface just before planting time, will prove far more productive in generating those gases which are congenial to the Potato than the most bountiful application of manure that could be applied.

Where lime would be unsuitable to the soil, soot and salt mixed in the proportion of 40 bushels of soot and 20 bushels of salt per acre, and applied in the same manner as lime, is a worthy substitute; in fact, it could not be misapplied on any soil, but it should be done in moist weather, while lime should always be applied in a dry time. Lime rubbish, such as old mortar and plaster obtained when brick buildings are pulled down, is an excellent manure for Potatoes, abounding as it does with the salts of potash and lime. It should be reduced to powder, then spread and harrowed into the surface similar to lime.

(To be continued.)

WATERTIGHT ASHPITS.

MR. RIDDELL has been kind enough to admit a failing in his system at Duncombe Park which may to some extent account for the oxidation which takes place upon his bars. Being a daily occurrence, I estimate that it must be very small indeed, as computation must prove that a daily wasting sufficient to free the clinker from the bars at the least three times each day would mean speedy ruin. Agreeing, as we do, entirely as to principle, I would dwell a little more on details. Mr. Riddell may, I fear, convey to some a wrong impression with regard to the rapid evaporation from his ashpits, and one that Mr. Bardney at first entertained, partly causing him to recommend a flow in and out. When Mr. Riddell says all the water is evaporated long before morning. I cannot but think leakage must play an important part because from very close observation we find the quantity evaporated to be comparatively little, and this can be regulated with the greatest nicety by the amount of cold air admitted through the bottom doors, yet with open doors ours is far from been exhausted.

I feel greatly obliged to your correspondent for his able support of the vapour theory generally. I hardly see how the subject can be further and usefully discussed outside the theory and nature of metals, nor do I think any space would be wasted by extending it on this point. What Mr. Riddell has found pleasure and evident use in studying would perhaps stimulate others, for surely a gardener with a special subject has more than ordinary concern in connection therewith. Chemical affinity is so clearly defined that forces or compounds of the most destructive nature may be so united as to become preservative. We know that though oxygen is so abundantly present in the form of vapour, its destructive effects is increased or lessened according to the intensity of heat or manner of application. Steam acting upon cold metal or iron causes rapid oxidation, but I think no one who has knowledge of chemical science would for a moment suppose that a fire burning over water would attract by its heat more vapour than it was able to absorb.

Mr. Riddell says I seem to doubt that red hot iron is oxidised by water and steam. A glance at my article will show that I never mentioned the words "red hot." If Mr. Riddell infers that oxide produced by the various scientific appliances which are presented throughout every work of note on chemistry and often aided by acids is natural theory, I do not understand him, as, for instance, steam passing through a retort-like tube filled with iron borings. Such processes are to all intents and purposes artificial and represent the whole difference between natural and compulsory unity. It is at this point we must take our stand, because the primary aim in having water is in order to preserve the bars from becoming heated beyond a certain degree if possible, and this is what was meant in my first notes on the subject. I must confess to

being somewhat disappointed that the more scientific features have received so little attention. Certain it is that nothing directly bearing upon the subject is to be found in the most detailed works on chemistry, yet all are clear that within certain limits iron under the influence of heat is repulsive to oxygen. I observe, so far, that none have attributed any hardening effect produced upon the bars by the absorption of carbonised vapours; at any rate, I can attribute the brightness of our bars to no other property.

I hardly think Mr. Riddell will find a majority of stokeholes so perfectly dry that an idle boiler would rapidly yield to the powerful influences of oxygen in a cool state.—E. BURTON.

TUBEROUS BEGONIAS FOR BEDDING.

THAT Tuberous Begonias are capital plants for beautifying the flower beds in summer is an undisputed fact. Those persons not having yet tried them for this purpose should procure a stock of plants, treat them well, and they will soon wish to increase the stock rather than otherwise. Now their cultivation is better understood no wonder they increase in numbers. What could be more lovely than the fine collection of Messrs. J. Laing & Son during the month of September or even October, where they grow in masses out of doors, of all shades of colour, forms, and habits? Amateurs would do well to take this plant in hand for the decoration of their beds or borders in a small way, as it is particularly well adapted to them. Its chief point with them is the small amount of space required for storing in the winter compared with that required for Pelargoniums. Many people fail to obtain good results with them as bedding plants owing to the way in which the plants are treated. The greatest mistake which can be made is that of growing the plants in the spring as large as possible in heat, with the idea that they will fill the beds more quickly. Nothing could be more directly in opposition to what is required than such a method of preparing the plants. Treated thus, the plants are tall, soft in growth, and unable to bear either wind or sun, and after receiving such a check they never make any progress, but the leaves fall off until nothing but the bare stems remain. The cry is then, "Oh! Begonias will not do in this locality for bedding, the climate does not suit them," whereas it is entirely, in many instances, owing to the treatment they receive that failure occurs. Having used them as bedding plants during the last four seasons with good results, I will detail my practice in their culture, with the hope that it may be suggestive to others.

These Begonias are equally good for planting on rockeries as for the ordinary beds, particularly if those plants with a drooping habit be selected for this purpose. The warm nooks and corners to be found in rockeries suits them admirably, and a fine show they make in such positions.

A stock of plants can readily be procured by raising seedlings. This, to many persons, is the most interesting manner, as the novelty of raising seedlings and watching for new varieties is most interesting, but where immediate effect is required in the decoration of the flower garden, one-year-old plants are the best to start with. These can easily be procured at a reasonable rate from any grower of this class of plant for sale. Such plants should be obtained any time during February or early in March. Place them at once in shallow boxes about 3 inches deep, having holes at the bottom for the outlet of moisture. At the bottom of the box place some rough leaves, then a layer of the following compost—two parts fibry loam, one part decayed leaves, a free admixture of sharp silver sand, and a light sprinkling of finely ground bones. On this lay the tubers, about 2 inches apart, covering them lightly with the same soil. Do not give any water, as the soil should be sufficiently moist for the tubers to keep plump and cause fresh roots to form. Place the box in a vinery or a Peach house just started, or any such structure where the temperature is kept at about 50° during the night with a rise of 10° during the day. As soon as roots form see that the plants do not suffer owing to the soil becoming excessively dry, but give water as required. When growth has commenced remove the plants to a cooler structure than those will be by the time the tubers have started into growth. The best position for them then and onwards is a cold frame, placing the box so that the plants will be close to the glass, which will prevent their becoming drawn. Ventilate gradually at first, taking care that cold draughts do not affect them, or a check will take place in the steady growth so desirable. Care of course will be taken to protect them from frost, and gradually inure them to the air, that the lights can be altogether removed during the day, and at night also they may remain off during the latter part of May when there is no fear of frost.

Towards the end of April, if all has gone well, the tubers will be furnished freely with roots, and several strong growths will have started from each plant, that more room will be required for both the roots and tops, also as before, time to plant them in the beds.

They will be matted together, which causes a check when the plants are transferred to their summer quarters. Some people pot the plants for the purpose of planting them out in the beds. This is a great mistake, as the roots often reach the sides of the pot, take an inward direction, and at times become root-bound; in consequence they do not take kindly to the soil when they are planted in the beds. Transfer them to similar boxes, giving more space between the plants, using the same soil, except that a few more bones may be added. Grown in boxes thus the roots are not cramped in any way, but all have an outward tendency, and can be lifted with a good ball of soil attached to each. In such a manner no check is caused by transplanting to the beds. After the removal of the plants to other boxes, return them to the frames, which should be kept rather close for a few days until new growth commences, when air may be freely admitted as before, and water regularly given to the roots. Plants so treated cannot fail to produce satisfactory results.

From now until the first week in February is the best time for sowing the seed, which should be done in pans, well drained, and filled with sandy soil in which plenty of decayed leaves are incorporated. On a fine surface sow the seed carefully, and cover it lightly with sand, having previously soaked the soil in the pan by placing it in water up to the rim; the water coming through the drainage gradually soaks the whole mass. Cover the pan with a square of glass. Over this place a layer of moss, which assists in retaining the moisture in the soil, thus lessening to a minimum the water applied to the soil until after the seedlings appear. Place the pan where it will have a gentle bottom heat, a hotbed or propagating house answers capitally. If kept shaded and moist the seeds will quickly germinate. As the seedlings appear above the soil remove the moss from the glass, giving air gradually by tilting the glass on one side. When the plants make two leaves place the pan on a shelf close to the glass in a Cucumber or Melon house, or other structure where a temperature of from 65° to 75° is maintained. As soon as the plants are large enough to handle prick them off into pans, using soil composed mainly of decayed leaves, sand, and a small portion of loam. Return them to their former position near the glass, water carefully. When growth is being freely made remove them gradually to cooler quarters until they are in the cold frames, when they may be transferred to boxes, using the same sort of soil as advised previously for the older plants. At this stage no shading will be required, previously a little would be necessary in the case of the tender seedlings.—E. MOLYNEUX.

(To be continued.)

SABAL BLACKBURNIANA.

FAN-LEAVED Palms are general favourites with cultivators, and for large conservatories or winter gardens they make grand specimens. The genus *Sabal* includes several species that are especially valued for this purpose, and some handsome examples may be seen in the leading botanic and private gardens both in Britain and on the Continent. *S. umbraculifera* is one of the best known; *S. Adansoni* is also occasionally seen, while a third favourite, *S. Blackburniana*, is represented by noble plants in several collections. That shown in our illustration (fig. 11) is a specimen of *S. Blackburniana* grown in a corner of the great conservatory at Chatsworth, where it has for many years formed an object of much beauty. It is 20 feet high and nearly as much in diameter, with abundant healthy well developed leaves, deeply cut into sharp and regularly spreading segments. Rising above the Ferns and miscellaneous plants grouped in the bed it has quite a majestic appearance.

S. Blackburniana is a native of tropical regions, but like most of its genus it has a good constitution, thriving with moderate attention and enduring a lower temperature than many Palms. Small plants can be grown in pots, employing a substantial loam, but the larger specimens are better either in tubs or planted out.

ADIANTUM FARLEYENSE.

THIS Fern is one of the most beautiful of the whole genus, yet we frequently find it in anything but good condition, and is pronounced by some growers to be rather more particular as to its requirements. That statement I agree with, for I have seen it in a very unsatisfactory condition where most other plants have been well understood, and its stubbornness in refusing to grow satisfactorily could not be accounted for. When its requirements are sufficiently understood, and it receives the right treatment, it grows vigorously. It appears to thrive best when treated rather differently from the majority of Ferns. It particularly objects to overpotting if it is not in a good condition. I have taken plants in hand which have previously refused to do well, and as



FIG. 11.—SABAL BLACKBURNIANA AT CHATSWORTH.

soon as they have had a change of treatment they have grown as well as could be wished. In dealing with an unhealthy plant I commence by turning it out of the pot and shaking away the soil, placing it in a smaller pot with good drainage. The soil I use is strong loam with about a sixth part of old manure, with a liberal quantity of sand. This is pressed down quite firmly in the pots; in fact, a stick should be used to ram it with. Water is given very sparingly until new growth is being made. February is a good month to take them in hand, as they then get a long season to make their growth. If the plants are old crowns they should be divided, and the older portions of the crowns cut away, as they are invariably weak, and produce but small fronds. When it is seen that the roots are taking to the new soil give more water, and when they commence throwing up their new fronds, and a few of them are fully developed, they may be shifted into larger pots, carefully drained and have them clean, using the same kind of soil as before, being careful not to damage the young roots in the potting. They succeed in an ordinary stove temperature, but I find they succeed best in a much lighter position than they usually have. I like to have them as near the glass as possible, with no more shade in summer than ordinary stove plants require, and I am careful not to syringe them too much; but if they are near the glass with plenty of heat and light they rarely damp, especially if the fronds are opened out with a few neat sticks, but they should be so placed as not to interfere with the natural habit. When they are well rooted, I find they are much benefited by being watered with liquid manure. By this treatment I have no difficulty in inducing them to grow in a most satisfactory manner. They succeed much better without peat, growing much more strongly without it. Great care in watering unhealthy specimens is necessary, but when they are thriving they are not so likely to have too much.—W. SIMPSON. *Prescot.*



WE regret to have to record the death of the EARL OF CHESTERFIELD, better known, perhaps, as Sir Henry Scudamore Stanhope, Bart., of Holme Lacy, Hereford. His Lordship, who had for a long time been in failing health, expired at St. Leonards, in the sixty-seventh year of his age. Lord Chesterfield was an earnest horticulturist, and had a fine collection of fruit, and his beautiful gardens, which have been fully described in this Journal, were opened to the public weekly during the summer.

— IT has been announced that the inhabitants of Sheffield have decided to commemorate the jubilee of the Queen by enlarging the BOTANIC GARDEN, and purchasing adjoining land as a public recreation ground.

— MR. N. DAVIS of the Chrysanthemum Nurseries, Lilford Road, Camberwell, has been joined by Mr. H. J. Jones of the Hope Nurseries, Lewisham, and in future the business will be carried on under the name of Davis & Jones.

— CLYDESDALE FRUIT GROWERS.—A correspondent writes that, "The fruit farmers upon the Clyde, have, like many others for a long time past suffered from the effects of foreign competition, the boilers of fruit using fruit unfit for consumption in making jam, to which glueose and other ingredients are added, thereby lowering the value of home-grown fruit. The fruit growers have for some time past been discussing the question how to better their condition, and place before the public a genuine and wholesome article of food free from adulteration, and have now resolved to form a limited liability company, and in the future manufacture their own fruit into jams and other confectionery, and place themselves beyond the influences of merchants and boilers."

— MESSRS. WEBB & SONS' STAFF.—On Saturday last Messrs. Webb & Sons' clerks, numbering about fifty, had their annual dinner at the Mitre Hotel, Stourbridge, and, after full justice had been done to the excellent dinner provided, Mr. J. P. Hitchings took the chair, and a varied programme of vocal and instrumental music was carried out in a very creditable manner. The toast of the evening, proposed by Mr. Berrington, was "Success to Messrs. Webb & Sons," and the enthusiasm with which it was honoured testified to the good feeling existing between Messrs. Webb and their staff. Mr. Hitchings responded on behalf of the firm.

— SOME time since it was hinted that an official publication from the Royal Gardens, Kew, giving particulars respecting the work carried on in that important national institution, would be useful. The matter has been carefully considered, and as a result the first number of the BULLETIN OF MISCELLANEOUS INFORMATION has just been issued. In the introductory notice Mr. W. T. Thiselton Dyer observes:—"It is proposed to issue from time to time, as an occasional publication, notes too detailed for the annual report on economic products and plants, to which the attention of the staff of the Royal Gardens has been drawn in the course of ordinary correspondence, or which have been made the subject of particular study at Kew. It is hoped that while these notes will serve the purpose of an expeditious mode of communication to the numerous correspondents of Kew in distant parts of the empire, they may also be of service to members of the general public interested in planting or agricultural business in India and the Colonies."

— THE first part of the "Bulletin" contains several letters concerning an Abyssinian Cereal, TEFF, *ERAGROSTIS ABYSSINICA*, which is said to be very useful for cultivation at high elevations, and seed has been collected for distribution to botanic gardens in India and the Colonies. The following extract is given from Bruce's Travels as illustrating the quality of the cereal:—"This grain is commonly sown all over Abyssinia, where it seems to thrive equally on every sort of ground; from it is made the bread which is commonly used throughout Abyssinia. The Abyssinians, indeed, have plenty of Wheat, and some of it of an excellent quality. They likewise make as fine Wheat bread as any in the world, both for colour and for taste; but the use of Wheat bread is chiefly confined to people of the first rank. On the other hand, Teff is used by all sorts of people, from the king downwards, and there are kinds of it which are esteemed fully as much as the Wheat. The best of these is as white as flour, exceedingly light, and easily digested. There are others of a browner colour, and some nearly black; this last is the food of soldiers and servants. The cause of this variation of colour is manifold; the Teff that grows on light ground having a moderate degree of moisture, but never dry; the lighter the earth is in which it grows the better and whiter the Teff will be, the husk, too, is thinner. The Teff, too, that ripens before the heavy rains is usually whiter and finer, and a great deal depends upon sifting the husk from it after it is reduced to flour by bruising or breaking it in a stone mill. This is repeated several times with great care in the finest kind of bread, which is found in the houses of all people of rank or substance. The fruit or seed is oblong, and is not so large as the head of the smallest pin, yet it is very prolific and produces these seeds in such quantity as to yield a very abundant crop in the quantity of meal." Some particulars respecting the Oil of Ben obtained from the seeds of *Moringa pterygosperma* are also given. We anticipate that this publication will be welcomed by many persons who are interested in the useful work performed at Kew.

— M. BRUANT of Poitiers announces as a novelty *SOLANUM ALBIDUM POORTMANI*, a distinct variety found by M. Ed. André in South America. It is said to grow in the Andes at an altitude of about 6000 feet, and is described as forming little trees 12 feet high. It is very vigorous, with large irregularly lobed leaves of a distinct green hue, tinted with metallic blue in some places. For sub-tropical gardens and parks it seems likely to be extremely well suited.

— THE annual dinner of the ANCIENT SOCIETY OF YORK FLORISTS was held on the 19th inst. at the White Horse Hotel, Coppergate, and a large number of members and friends responded to the following quaint invitation:—"Brother,—You are desired to meet the Fraternity of the most Antient Art of Gardening at the annual Feast of the Royal Society of Gardiners and Lovers of a Garden within the City and County of York: kept this Year at Mrs. Marshall's House, in Coppergate, the 19th Day of January, to dine with them, at Six a Clock: where you will be earnestly expected and kindly received by, Your humble Servts, T. E. Abbey, G. Cowper, G. Lamb, Stewards." The letterpress was surmounted by the national arms, flanked by the Gardeners' Arms and the York Arms, and was a fac-simile (with the exception of names) of an ancient plate presented to the York Florists Society by Mr. Henry Mills, late President, the 19th February, 1829, and renewed and presented by J. H. Carr, Secretary, 1874. The Lord Mayor presided, and a number of city officials were present. The usual toasts were proposed and responded to, and it was stated that the Society has a balance of over £100 to its credit. Upon another page is given a

transcript of an interesting document relating to the formation of this Society.

— **GARDENING APPOINTMENTS.**—Mr. E. G. Wheeler, for the last two years foreman at Birt Castle, Parsonstown, Ireland, has been appointed to succeed the late Mr. McElroy, as head gardener to A. J. Lewis, Esq., Moray Lodge, Kensington. Mr. Thomas Chalk, for the last three years fruit foreman at Welbeck, has been appointed head gardener to John Rhodes, Esq., Potternewton House, Leeds. Mr. George Pritchard, who for the last four years was plant foreman at Welbeck, has been appointed head gardener to Mrs. Miles, Kingsweston House, Bristol.

— **A WELL known American pomologist, MARSHALL PINCKNEY WILDER**, died at Dorchester, near Boston, December 16th last, at the age of eighty-eight years. He devoted many years to the improvement of fruit and their cultivation, was President of the Massachusetts Horticultural Society from 1840 to 1848, and one of the founders of the American Pomological Society, of which he has been President ever since, with the exception of one year. Mr. Wilder was connected with several other societies, and was greatly respected.

— **NEW BOOKS.**—We have received from Messrs Swan, Sonnenschein, Lowrey, & Co., "An Elementary Text-book of British Fungi," illustrated by William Delisle Hay, F.R.G.S., and Strasburger's "Hand-book of Practical Botany," edited by W. Hillhouse, M.A., F.L.S. Also from Messrs. Cassell, Petter, & Galpin, "The Encyclopædic Dictionary," part 36; Boulger's "Familiar Trees," part 18, and Hibberd's "Familiar Garden Flowers," part 94. From W. Day, 21A, Berners Street, "Album of Indian Ferns," by C. E. Baynes.

— **A COURSE of three lectures on the DISEASES OF PLANTS** was commenced at the rooms of the Society of Arts, John Street, Adelphi, on Monday, January 24th, by Dr. J. L. W. Thudichum, as one of the Cantor series for the present session. The second and third lectures will be held January 31st and February 7th. The introductory lecture dealt chiefly with a review of the lower forms of vegetation which exist as parasites upon more highly developed plants, causing many of the diseases that are so troublesome to cultivators. The minute forms of fungi are the principal enemies, as rust, smut, mildew, and moulds of innumerable kinds, which, as endophytes or epiphytes respectively, live in the substance or upon the surface of their hosts, obtaining their nourishment from them, and in doing so break up the cells, inducing decay and often death. Examples of the mode of action were drawn from the microscopic fungi found to infest the simplest forms of Algæ, as in the higher vegetation the process is a similar one. The Potato disease was described and illustrated by diagrams, the lecturer stating that when the peronospora had commenced the work of destruction it was materially assisted by bacteria and other organisms. The consideration of this fungus led to some remarks upon the Potato itself, in which Dr. Thudichum expressed his opinion that this vegetable has been greatly overrated as an article of food, and that any race of people who relied mainly upon it for sustenance would certainly become defective mentally and physically, and consequently discontented. He stated that to supply what was considered the necessary nutriment for the due support of a man's body for twenty-four hours upon a diet of Potatoes alone it would be necessary to consume about 12 lbs., and the superabundance of starch thus conveyed into the system would be injurious in other ways.

— **THE annual meeting of the HULL AND EAST RIDING CHRYSANTHEMUM SOCIETY** was held on the 24th inst. at the Station Hotel, Mr. G. Bohn, C.E. (Chairman), presiding. The Committee submitted the annual report and balance-sheet, the former of which spoke hopefully of the present condition and future prospects of the Society. The annual Show, held on November 18th and 19th last, was attended by nearly 10,000 visitors, being an increase of 3000 on the previous year. The report also drew attention to the crowded state of the rooms on the second evening of the Show, which necessitated the closing of the doors shortly after eight o'clock, and expressed the hope that the next show might be held in the proposed public hall of the town. The balance-sheet also showed a satisfactory state of affairs, and, after a short discussion, both were unanimously adopted. Votes of thanks were accorded the auditors, Messrs. T. S. Milner and James Abercromby, and those who had facilitated the sale of tickets. The Joint-Secretaries (Messrs. R. F. Jameson and W. Hawkesworth) having been requested to leave the

room for a few minutes, it was resolved to present each of them with ten guineas in any shape or form they desired, in recognition of their past valuable services. The meeting then proceeded to the election of officers, Mr. Bohn having stated his intention of retiring from the Chairmanship, Mr. R. F. Jameson, who had resigned his position of Secretary, was unanimously selected to succeed him. The Vice-Chairman, Major Brodrick and Mr. A. W. Stanley, were re-elected, with the addition of Mr. Bohn. Mr. Hawkesworth having expressed a strong desire to resign his Secretaryship, Messrs. R. Collison and E. Harland were elected joint Honorary Secretaries. Mr. C. Judge and Mr. R. Judge (Vice Mr. Cogan resigned) were appointed Treasurers, and the following Committee were elected:—Messrs. T. Y. Torr, F. W. Jameson, John Hornsey, J. H. Fisher, W. S. Brodrick, James Dixon, E. Goddard, E. T. Sharp, W. W. Cogan, W. Hawkesworth, W. Roper, and W. Wheatley. Votes of thanks to the Chairmen (Messrs. G. Bohn and R. F. Jameson) brought the meeting to a termination.

NEW PLANTS OF 1886.

(Continued from page 48.)

Inf., Inflorescence.—*L.*, Leaves.—*Fl.*, Flowers.—*Fr.*, Fruit.—*H.*, Hardy.—*H.H.*, Half-hardy.—*G.*, Greenhouse.—*S.*, Stove.—*Per.*, Perennial.—*Shr.*, Shrub.—*In.*, Inches.—*Lin.*, Line = One-twelfth of an inch.—*Ft.*, Foot or Feet.—*Diam.*, Diameter.—*Pet.*, Petals.—*Sep.*, Sepals.

N.B.—Unless specified, all Orchids may be considered to be stove epiphytes.

CALAMUS REGIS. (*Cat. Comp. Cont. d'Hort.*, p. 8.) *Palmae*. *S.* An elegant and graceful Palm, with shining green l., and a mealy petiole. *Papua*.

CALAMUS SPECTABILIS. (*Williams' Cat.*, p. 23.) *S.* A small growing somewhat spiny species, of graceful habit, with slender pinnate l. A charming plant for table decoration in a young state.

CALANTHE LANGEI. (*G. C.* xxiv, p. 679.) *Orchideae*. *S.* A handsome species, with elongate lanceolate l. growing to 2 ft. long and 2½ in. broad. Scape shorter than the l., raceme 3-4 in. long, fl. numerous, crowded, deep yellow, dorsal sep. ovate acute, lateral sep. lanceolate, pet. ovate acute, lip spatulate-obovate, apiculate, with minute deltoid side lobes, and two slight elevations at the base. *New Caledonia*.

CALANTHE NATALENSIS. (*G. C.* xxiv, p. 78 and 136; *B. M. t.* 6844.) *S.* terrestrial Orchid. A fine and handsome plant, with broad lanceolate acute plicate l., and a tall scape with a lax many flowered raceme of pale lilac fl., the lip changing to salmon-colour. Sep. and pet. ovate lanceolate acute. Lip with spreading oblong side lobes, and an obcordate front lobe; spur an in. long curved. *Natal*.

CALANTHE SANGUINARIA. (*G. C.* xxv, p. 331.) A handsome form, with hexagonal bulbs, and a hairy raceme of dazzling blood-red fl., the sep. and lip being lighter with blood-red markings, outside pale purple. Sep. acuminate; pet. broader; lip 3-lobed, the middle lobe cuneate, dilated, bi-lobed. Seedling form.

CALANTHE VESTITA, var. OCULATA-GIGANTEA. (*W. O. A.*, pl. 211.) A grand and beautiful plant, with large ovoid, obtusely angular pseudo-bulbs, broad lanceolate acute l., and a hairy raceme of handsome white fl., marked with a fiery-red blotch on the base of the lip, the under side of the base of the lip and the much-curved spur orange coloured. The fl. measure about 3 in. in diam. *Borneo*.

CALANTHE WILLIAMSII. (*Williams' Cat.*, p. 23 and p. 18, with fig.) *S.* This is the plant described in *Y. B.* for 1884, p. 81, as *C. vestita*, var. *Williamsii*.

CALLIRHOE PEDATA, var. COMPACTA. (*Gfl.*, t. 1224.) *Malvaceae*. *H. per.* A form of dwarf compact habit, very floriferous, and much superior to the type. *Garden variety*.

CALOCHORTUS VENUSTUS, var. ROSEUS. (*Gfl.* 1886, p. 116.) *Liliaceae*. *H.H.* A variety with short bluish-green l., and the fl. are white inside, with a distinct red spot on each segment, and purple-rose outside. *California*.

CALOPHACA GRANDIFLORA. (*Gfl.* 1886, t. 1231.) *Leguminosae*. *H. shr.* free flowering and ornamental. *L.* imparipinnate with 10-13 pairs of elliptic-oblong puberulous leaflets. Peduncles axillary, 6-8 in. long, laxly racemose and glandular hairy in the upper half, fl. about an in. long, bright yellow, calyx deeply 5-lobed, the lobes lanceolate acute. *Eastern Bochara*.

CAMPANULA GROSSECKII. (*Gfl.* 1886, p. 476 and 477, f. 55.) *Campanulaceae*. *H. per.* A large and handsome plant, with leafy stems 2½ ft. high, branching at the base, and ending in a long raceme of large bell-shaped violet fl. The large l. are cordate-lanceolate acuminate with coarsely toothed margins. *Eastern Europe*.

CAMPANULA PERSICIFOLIA, var. CORONATA. (*Gfl.* 1885, p. 370.) *H. per.* An ornamental variety with double white fl. *Garden variety*.

CARAGUATA ANDREANA. (*R. H.* 1886, p. 276, with plate.) *Bromeliaceae*. *S.* A handsome Bromeliad, with a lax rosette of arching green l., 2 ft. long by 2 in. broad, and a rather lax spike-like panicle longer than the l., with the stem and bracts carmine-rose, and the calyx and corolla bright yellow. The numerous fl. are about 2 in. long. *Andes of Pasto*.

CARAGUATA OSYANA. (*B. H.* 1885, p. 254, pl. 26-27.) *S.* A fine Bromeliad, with numerous, spreading, unarmed, green l., 18 in. long by 2 in. broad, and a large, dense, subsessile central head of yellow fl. subtended by bright salmon-rose, lanceolate, acute bracts, with spreading tips. *Ecuador*.

CARAGUATA PEACOCKI. (*B. H.* 1885, p. 82.) *S.* A very ornamental species, with an ample rosette of l., of a rose-purple colour beneath, bronzy-purple above. Fl.-stem covered with brighter purple bracts, the upper ones rolled round the white fl.

CARPENTERIA CALIFORNICA. (*G. C.* xxvi, p. 103, f. 22.) *Saxifragaceae*. *H.H. shr.* of ornamental character, or perhaps *H.* in the south. *L.* opposite, lanceolate, finely serrulate, white tomentose beneath, 2 to 4 in. long, ¾ to 1 in. broad. *F.* very showy in terminal cymes, white, 2 to 2½ in. in diam.;

pet. broadly obovate, overlapping, and very spreading or reflexed; stamens numerous; ovary flask-shaped. A very handsome and desirable shrub. California.

CARYOTA PLUMOSA. (*Cat. Comp. Cont. d'Ho t.*, p. 8.) *Palmæ*. S. Stated to be a beautiful Palm, but no description given.

CASTANEA VESCA, vars. *FOLIIS ALBO-MARGINATIS* and *AUREO-MARGINATIS*. (*R. H.* 1886, p. 398.) *Cupuliferae*. H. trees. These ornamental vars. have the leaves respectively bordered with creamy-white and yellow. Garden varieties.

CATASETUM BUNGEROTHI. (*L. pl.* 57.) *Orchideæ*. A very distinct and striking species, with a fine raceme of white fl. $2\frac{1}{2}$ in. in diam. Sep. and pet. lanceolate acute, stellately spreading; lip very large, transversely oblong, deeply concave, gibbous behind. Trop. America.

CATASETUM GLAUCOGLOSSUM. (*G. C.* xxiv., p. 552.) A fine and curious species, with a stout several flowered deflexed raceme of large fl. Sep. ligulate acute, brown. Pet. much larger, oblong, acute, glaucous with brown spots. Lip with a depressed rounded sac and a triangular mouth, quite glaucous with brown spots inside. Mexico.

CATASETUM LEHMANNI. (*Gfl.* t. 1223, f. a. g.) An interesting but unattractive species, with fusiform bulbs 6 in. long, narrow-lanceolate l. 16-18 in. long, and a long peduncle, bearing a few fl. about an in. in diam. Sep. connivent in a globose form, green; lip deeply saccate, subhemispherical, with the apex projecting in an obtuse point, dull orange-yellow. Columbia.

CATASETUM MACROCARPUM, var. *BELLUM*. (*G. C.* xxv., p. 74.) A variety with brown-purple pet., and a large purple-brown blotch on each side the lip. Brazil.

CATASETUM TABULARE, var. *SERRULATUM*. (*Gfl.*, t. 1223, f. h. m.) A good variety, with the dorsal sep. and pet. greenish yellow, the pet. dotted with red, the long lateral sep. greenish, and the lip green, with the very thick central crest white, and the margin finely serrulate. Audes Columbia.

(To be continued.)

THE THANATOPHORE.

JUST on the eve of going to press we have received from Mr. B. S. Williams of Upper Holloway, blocks illustrating a new fumigator, which

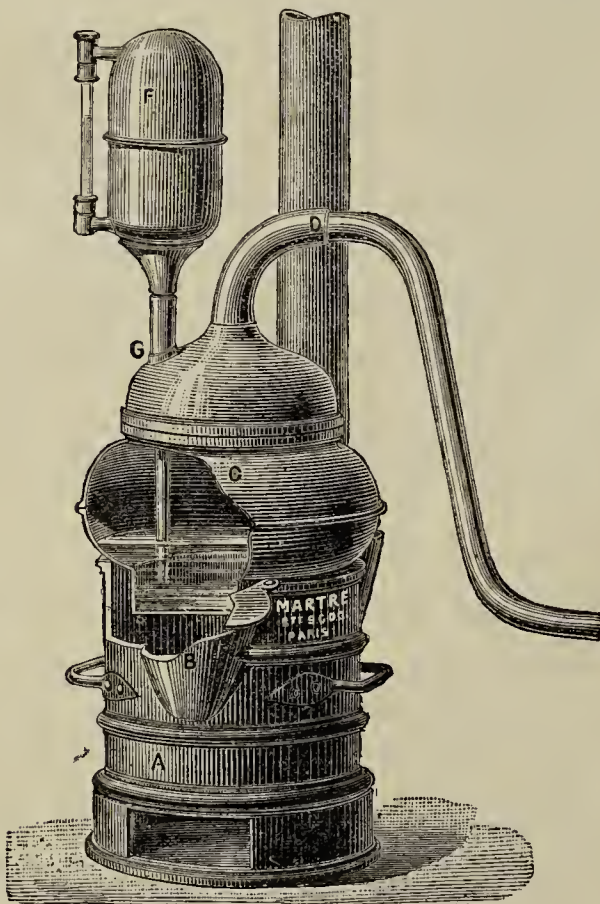


Fig. 12.—The Thanatophore.

has been carefully tried in his nursery and found very satisfactory in all respects. We can only give one of the illustrations now, and a few words of explanation, but as we have seen the fumigator in operation and can testify to its utility we shall have occasion to refer to it again. It is a French invention, and has been tried extensively in France, where M. Boizard, gardener to the Baronne de Rothschild, has successfully demonstrated the efficacy of the steam of tobacco juice as an insect destroyer. It is upon this principle that the machine is constructed, the lower portion (A) containing the fire, above this is a boiler (C) filled with tobacco juice, the steam from which is forced through the pipe (D) into the house. The steam has been found to be most rapid in its action, but while so effectively destroying the insects it has not injured the flowers of the most delicate Orchids. It is constructed in three sizes, No. 1, heated with a spirit lamp, suitable for small houses and frames; No. 2, rather larger (shown in fig. 12), and No. 3, a still larger size, employed in large conservatories.

THOUGHTS ON CURRENT TOPICS.

I HAVE not had much time for thinking lately, and less for putting my thoughts on paper, but I perceive Mr. Bardney has "cornered" me, and I must try and extricate myself. But a few other topics may be first disposed of, and in the meantime sufficient mental strength may perhaps be gained for the great effort of telling our incredulous friend why fires burn brighter on clear frosty nights than in dull and damp weather.

I THINK Mr. W. J. Murphy has on page 41 set a more difficult puzzle than that, and on a subject of far greater importance. Many will regret the collapse of the Scotch Champion Potato in Ireland. There is no wonder at the degeneracy of the variety under the circumstances indicated. No variety of Potato can long retain its vigour when the first and strongest growths are rubbed off the tubers, and the second and third weakened issues are depended on for the production of crops. The growth of tubers, including those of the Champion, can be retarded when there is space for storing them in a light, dry, cool, yet frost-proof place; but I know from experience how difficult it is to prevent tons of tubers starting prematurely. It is unfortunate that Magnum Bonum is not good in Ireland till February. In extensive culture in England, to which I am not a total stranger, Magnum Bonum is still the most reliable and profitable for market where most sorts are tried and hundreds of acres grown. A very widespread desire exists now amongst all classes and creeds for the improvement of Ireland and its population, though there are differences as to method; a practical way of doing good would be for persons who have strong-growing varieties of Potatoes that they think likely to be adapted to the Irish soil and climate to send samples to Mr. Murphy, and let him test them. He is, I think, very competent to do so, and has the means of carrying out experiments of this nature at Clonmel.

I HAVE been rather glad to see that the large flat Onions that I ventured to suggest had been over-honoured at shows have found few champions. It is not Onions of that type that can successfully compete with the foreigners, as Mr. Murray has said in his able article; and, like that expert cultivator, I believe we have ourselves to blame for much of the foreign competition that presses so hardly on home cultivators. If Onions 2 lbs. in weight can be grown in Scotland, surely bulbs can be produced in England equal to tons that are imported. To sell well Onions must be large, bright in colour, and round. For home use small bulbs are as good as large, and possibly keep better, but they do not "take" with greengrocers and their customers; nor do flat Onions, as, however large these may be, buyers will hardly look at them if the huge round foreigners are in sight. It is a question if more Onions, ordinary summer Onions, ought not to be sown in the autumn and transplanted the same as the Tripolis are. In some soils, where the Onion maggot is so destructive, that is the best plan for evading it, and finer, earlier, and better ripened bulbs are produced than by the orthodox plan of sowing in spring.

MR. OLLERHEAD does not often favour the public with his views and experience, but when he does write he invariably says something worth reading. He appears to raise Gladioli as easily as he raises Onions, and there ought soon to be no lack of spikes of these beautiful flowers for cutting during the late summer and autumn months. Your correspondent, I think, deserves a vote of thanks for his valuable communications.

SPEAKING of "votes of thanks" naturally carries the mind to the Committees of the Royal Horticultural Society, who distribute these and other marks of recognition; well merited, no doubt; but I cannot help thinking that many a man does more good with his pen in this and other Journals, and in books, for the cause of horticulture, than do those who happen to find Primroses a little different from ordinary forms, and get a card for them, or who buy plants that others raise and for these obtain certificates; yet it is rare that workers in the press, however able and diligent, are accorded any official recognition, and posthumous praise appears to be their only reward. I am free to allude to this subject, as the nature of these erratic jottings obviously places the author of them beyond the pale of the solid workers to whom the remarks apply. This is one of those peculiar matters in which those who do the most can say the least, and those who do the least can say the most; hence my opportunity. I think, for instance, such books as Hogg's "Fruit Manual," Masters' "Plant Life," Robinson's "Flower Garden," Barron's "Vine Culture," Veitch's "Coniferae," Thomson's "Fruit Culture Under Glass," Wright's "Mushrooms for the Million," Molyneux's "Chrysanthemums," Williams' "Stove and Greenhouse Plants," Castle's "Orchids," with such useful works as have been produced by Messrs. Hibberd, Paul, Rivers, and others, are as well deserving of official recognition as are a good many plants and cut flowers to which medals are awarded. But it is all "show" nowadays. No matter whether you grow, borrow, or buy a few plants, flowers, or vegetables, so long as you "show" them that is enough, and generous societies and memorial trustees will shower honours on your calculating heads. If you "do" little but "show" much you will soon be somebody; but if you do much but "stage" nothing, nobody will know you out of your own little corner. Perhaps the Royal Horticultural Society will get out of the "show" groove some day, and may possibly attend to these other little matters suggested some time during the next century.

WE have had some delightfully written articles in the Journal of late, like dessert with the solid literary fare. Read Mr. John Edmunds'

"Pleasures of a Garden" in the first number of the year, and you can almost taste the Strawberries and hear the singing of the birds; and read Mr. Horner's "Word Painting" in the last issue, and you can see the colour flashes of the Tulips under the rays of the morning sun. Yet as a "Young Gardener" wrote a short time ago, there is no attempt at "fine" writing in these articles. Their beauty consists in the easy freedom, naturalness, and elegant combination of simple words. Whoever our "Young Gardener" may be, I think he carries an oldish head; and whoever Mr. Edmunds may be, we shall look out for those other promised pleasures—"Observations on Art in the Garden; Science in the Garden; and ever so much more." As to Mr. Horner, there is a line at the bottom of his article on page 40, that all must be glad to see—"To be continued." Of all florists' flowers I think Tulips the grandest, and I live in the hope of some day having the privilege of seeing Mr. Horner's brilliant group.

"A SCOT," on page 29, refers to the great loss of heat from pipes in mains, and asks for a remedy. The loss of heat, and consequently needless consumption of fuel, is very great in many gardens, through pipes being conducted in channels to the structures that have to be heated. The remedy is the more general use of fire-proof non-conducting coverings. Felt is used by some gardeners; but asbestos and such heat-proof coverings as are employed by engineers for boilers and steam pipes are more effectual, and though I have seen these coverings used in gardens satisfactorily in preventing the escape of heat from boilers and pipes I do not know how far the heat thereby economised justifies the cost of preventing its escape. Can anyone enlighten on this subject?

THE subject of joints for hot-water pipes has been under discussion, and the relative superiority of iron filings and indiarubber rings alleged and denied. Perhaps they both have their advantages under certain circumstances. An instance of the advantage of rings may be recorded. The pipes in a glass structure were connected with them. This structure was not heated during the late severe weather, nor was the water drawn from the pipes, as it should have been, but was converted into ice. The pipes must inevitably have burst had the joints been of an unyielding nature; but instead of that, the rings were simply pushed out of the sockets and the pipes remain sound. The pressure must have been immense, as the pipes had been fixed for many years. The displacement of the rings proves also the fallacy of the notion that lingers in the minds of some persons, that the swelling of the water which ruptures pipes occurs in consequence of the slight increase in temperature that melts the ice. They think it is the expansion of the water through the ice thawing that causes the evil; but it is not. It is the expansion that occurs in freezing, and the forced-out indiarubber rings may possibly impress the fact on the minds of those few readers who are still in doubt on the subject. The rings saved the pipes, and there was no leakage for a fortnight after they were driven out.

BUT I must not forget Mr. Bardney. I am obliged to your correspondent for telling us he said what he did not mean in a sentence to which I referred on a former occasion. It is clear an explanation was needed. He now, on page 46, informs us what he intended to convey. Mr. Bardney evidently believes, if he has any belief at all on the subject, that if water is of any benefit in ashpits cold is better than warm water there. I am doubtful on the point, even in the case of solid bars; while if the bars contain water, and thus form part of the boiler, I fail to see the advantage of "cooling" them if we want heat. There is no doubt, in my opinion, as to the value of such bars, and I am inclined to suspect that they add immensely to the heating power of a boiler. In the case of a saddle boiler it is conceivable they may increase its power by a fourth, and consequently save a corresponding quantity of fuel. But apart from such water-way foundation for the fire to rest on, I am not quite able to follow your correspondent in his bar-cooling theory. I think I see what he means, but do not recognise the advantages of a stream of cold water passing beneath the fire. I suspect economy will be found in having the water warm, because the oxygen and hydrogen conveyed in the vapour renders less air necessary for feeding the flame. I think we want all the heat we can get in a furnace from the least expenditure in fuel, not a prevention of heat for "cooling" the bars. It is not to this cooling, I think, that the beneficial results of wider spaces between the bars in Mr. S. Castle's case is due, but to the more direct action of oxygen on the fire, which the closer bars impeded.

NOW to the problem. Mr. Bardney asks me if I can explain why a fire burns brighter on a cold clear frosty night than in dull mild weather. I think I know the cause, but am not sure it can be made intelligible in a few words, and if it can it will not, I think, strengthen our friend very much in the somewhat shadowy views he appears to entertain, for he would have found out long ago if he had tried the plan, that warm water under the furnace does not prevent that inense glow on cold nights. When the weather is clear and frosty the barometrical pressure increases, more oxygen being compressed as it were into a given volume of air, and this causes the intenser glow of fires. Again, in the question of heat Nature is ever seeking an equilibrium, and if the air is heated in one place it becomes rarified, rises upwards, and the surrounding air rushes in to occupy its place, and the colder this is the greater is the rush. This it is that on a small scale causes the glow of a fire under those conditions, and on a larger, the land and sea breezes in the tropics and the equinoctial gales. Perhaps your correspondent would

like a homely illustration. Had he been near a recent conflagration in Liverpool, and the night calm, he might have noticed that where the heat was most intense the wind blew from every quarter to the fire; if there were streets converging to it from every point of the compass, the cold air would rush down them all to fill the vacuum caused by the upward rush of the heated air, and it would not be checked in its course by the steam engines playing on the fire, nor will the vapour rising from water in ashpits prevent the glow of the fire above it on cold clear nights.

I THINK most persons will be glad to see the unanimous election of Mr. D'Ombra to the office of Chairman of the National Auricula, Primula, Carnation, and Picotee Societies, as the successor of the late Mr. Thomas Moore. Only a very experienced and ardent florist could fittingly follow so good a man, and Mr. D'Ombra's experience is perhaps unique, and his fidelity to the cause of florists' flowers has stood the test of many long years. I trust we will soon have the pleasure of seeing the debt of the Carnation Society wiped off. I am thinking of giving 5s. for that purpose, and trying to collect a few more in this way. "The smallest donations thankfully received" by—A THINKER (*care of the Editor, 171, Fleet Street, London*).

CAMPANULA ROTUNDIFOLIA FLORE-PLENO AND OTHER DOUBLE FLOWERS.

ON page 49 of the present volume of the *Journal of Horticulture* I read with some surprise that the double variety of the Scotch Bluebell is considered a rare plant in gardens. I have had it in cultivation for about ten years, and as it produces seed abundantly, and a fair proportion of the seedlings produce double flowers, I have had such a surfeit of it as to neglect it, and perhaps now it hardly survives here. At one time I collected, not only in Britain but from several parts of Europe, all the varieties I could get of that remarkably variable species, *C. rotundifolia*; but I found the seedlings so insinuating and so difficult to eradicate amongst the stones of the rockeries that now I can only allow a few varieties to grow in privileged corners. The double variety, of which the commonest form, as in several other species of *Campanula*, has two corollas, one fitted inside the other, is often sold as *C. soldanellaeflora*; but from the same lot of seed plants are produced in which the corolla is repeated so as quite to fill the bell, though the doubling varies according to soil and cultivation. A curious form is often produced from the seed of the double flowers, in which the corolla is cleft quite to the base of the calyx, and consists of fine very narrow linear petals. This form is known to botanists. I have never seen a double of the white-flowered variety, though I have heard of it.

Mr. Thomson is quite right in thinking the double form rare as a wild plant. I never heard of it being found wild before. The British plants which produce double flowers as wild plants are few; I know only of three or four, but perhaps some of the readers of this *Journal* can add to the number. The plant which does so most commonly is *Cardamine pratensis*, which I have found growing double perfectly wild in two or three different counties. One spot is near Edge, in Cheshire, and the double plant ranges over a space of about half a mile square. The single form grows with it, and varies in shades of lilac, but the double flowers are all of one shade, making it probable that they are all the increase of one accidental sport. They increase freely by shedding the lobes of the leaves at a certain stage of maturity, which root and become plants. They do not ripen seed.

Another plant is *Saponaria officinalis*, which I have occasionally found double on the banks of the Dee and the Clwyd in North Wales, where the single form abounds. A third is *Ranunculus repens*, which my friend, Mr. Brockbank, found growing in a meadow not far from Manchester. There were only a few double flowers, and he judged it to be a sport rather than a seedling, but it has continued true in cultivation ever since. The last I have to mention is the Daffodil (*Narcissus pseudo-Narcissus*), the dwarf wild form of which occasionally produces double flowers in seven or eight English and Welsh counties.

The question of Daffodils doubling under certain conditions of soil and climate has frequently been discussed, as well as that of the large double garden Daffodil with the small wild Daffodil. I am not wishing to reopen the discussion here, but merely say that after paying great attention to the subject I find it impossible to draw a line between the double of the wild Daffodil and what is generally called the large garden Daffodil.—C. WOLLEY DOD, *Edge Hall, Malpas*.

NAMES OF AURICULAS AND THEIR RAISERS.

AURICULA CAMPBELL'S GREEN EDGE.—The variety grown under this name was not raised by Mr. Peter Campbell of Falkirk. Having omitted to make careful inquiry—the first duty of a historian—your correspondent, on page 579 last vol., establishes the correctness of my conjecture as to this being Cunningham's unnamed flower. The "true

history" there given is true in all but the point at issue. The plant from which a pip, and subsequently an offset, was sent was brought by Mr. Campbell along with others for the late Mr. Jeffreys and himself from the stock of Mr. Cunningham, when, after his death, his collection was being sold under the direction of Mr. Waterston of Paisley. The tally bore "Seedling, Green-edge," and Mr. Campbell has always acknowledged the flower to be Cunningham's. Whether such an avowal was made or not when the plant was sent to your correspondent, it is clearly right that an addendum to the history should follow. The writer of it would possibly bear with equanimity the distribution of an avowedly "third-rate" flower under his name without his sanction—probably not.

Growers of Auriculas take a pride in having their collections correctly named as to both the varieties and their raisers. You may therefore admit the following correction and remarks. In the Auricula election (Journal of July 2nd last year) among the white-edged varieties will be found Mrs. Campbell (Campbell). This is wrong. The Auricula of that name was raised by Cunningham, again on the best authority. "A descriptive catalogue of 280 show Auriculas," in a contemporary magazine nearly five years ago will be well known. I have spent not a few spare half hours over it. Old fogeys may be likely to agree that the descriptions are well nigh as misleading as reliable. Were they correct the old standard sorts should ere now have been utterly routed by the numerous lauded novelties. Have they? Is there yet any likelihood of the grand old fellows striking their flag? Not that I am aware of, and I have bloomed a good number of the later additions, and have seen, I may say, the very latest obtainable sorts. Of these perhaps more by-and-by. Meantime, in that list Bradshaw's Tidy appears as a white-edge. Unless that be a mistake (if so, a correction may have been given that I have not seen), others as well as I who have it as a self are wrong. I have tried without success to get a trace of Lightbody's Sir Colin Campbell, one of the 280. If there be such a variety, is it known in the land of its reputed raiser? A solution of the difficulty has been offered, that, like the hero himself this and Lord Clyde are one; but the dates and descriptions appended indicate different flowers. Information would be welcome.

The following occurs in the same contemporary of date May 15th, in the past year:—"Sophie Dumaresque, probably raised by Chapman, but Mr. Meiklejohn could not say for certain who raised it." It is surprising that Mr. Meiklejohn was ever in doubt on this point, but even his latest catalogues were incorrect, this variety being given as "Lady Sophia," with Dumaresque as the raiser. He knew that this was an error, a good many years before his death at any rate, but neglected to have it corrected. Lady Sophia (not Sophie) Dumaresque was raised by Lightbody, and is generally given correctly in catalogues. Such "faults" as that in the above name may be trifles, but what is the use of originating and perpetuating even these? I again ask for information. Did Chapman name his plants "Marie" and "Sophie"? If so, well! If not, what next? "Conserveur," and "Sylvie," and "Monsieur le Docteur Kidd"?—A NORTHERN AMATEUR.



KITCHEN GARDEN.

MANURES.—First-rate vegetables cannot be grown in any garden without a liberal supply of manure. When the soil is new, or before it has produced any great crops, it will often do very well without manure, and we have often had the finest of Potato crops from newly broken up ground, but Cabbages, Cauliflowers, Savoys, Onions, and Celery soon rob the soil, and successional crops can only be obtained by adding manure before sowing or planting. The best of all kitchen garden manure for crops generally is that from cow sheds, and the next is stable manure. A mixture of leaves and light materials are well enough for producing roots, but they do not possess the power of developing and maturing a high class crop. Market gardeners always take good care to deal largely in manure, and private gardeners would like, as a rule, to follow their example in this respect, but many garden owners seem to think that they should receive the most remunerative crops from their gardens with the smallest possible expenditure for manure, and we would say briefly that no man can accomplish this. We do not approve of that commonly recommended article, "well decayed manure," as a great deal of the virtue has passed away from such material, but manure only slightly decayed is what we use and recommend.

TILLING THE SOIL.—Many of the quarters are now becoming vacant. Those dug roughly in the autumn have been pulverised to advantage by recent frosts, and as other pieces may still come under the same influence no time should be lost in digging and trenching them. This is one of the greatest aids to good results and economical labour, as ground that has been well frosted is always more friable and easier worked than that which is not exposed to the frost.

ASPARAGUS.—Forcing this is becoming more easy weekly, and the roots when placed in the bed of the Cucumber pit, or on a hotbed, produce heads for the table in ten or twelve days. A constant supply will not fail to give satisfaction to all. In mild springs it is astonishing how

early the heads in the open beds begin to grow, and it is a great advantage always to top-dress them before growth begins, and the present is a good time to do so. We are greatly in favour of early dressing, and practise it with good results. Where there are a quantity of young one or two year old roots they may also be dressed, as they will absorb the manure, and it will strengthen them for a good beginning, whether they are transplanted further on or not.

SEAKALE.—Hitherto we have been lifting these roots for forcing, but this is stopped, and forcing will now only be done on the ground where the roots are growing. They are now easily managed in this way, and the produce will be superior to that from the lifted roots.

SPRING CABBAGE.—These look promising, and as they will now be one of the first crops to gain maturity in the open all possible help should be given them. When the ground is free from frost and snow fill any blanks which may have occurred, sprinkle a little soot or a small quantity of guano round each plant, and earth up slightly.

WINTER SPINACH.—The frost has dealt so severely with this that it has almost disappeared, and the other day when an old man, who has been thirty-five years in the garden, was digging close by he was very anxious to extend his operations over the Spinach piece; but this should not be allowed, as, although the plants do not appear serviceable at the present time, the roots are all right, and when the spring comes they will afford a good supply of leaves long before the plants raised from spring-sown seed are ready, and we always find the winter Spinach roots most useful in April and May.

STORED ROOTS.—These must not be neglected, and it is just about this time that many of them begin growing again or decay. Where fresh growths are springing out from the crowns of Carrots, Beetroot, &c., break the whole of them off, and in turning them over to do this remove any root that shows signs of decay. A thorough overhaul now will keep them right until spring, whereas neglect at this time may cause many to decay prematurely. Our Salsafy and Parships are still in the ground and keeping well, and none of them will be lifted and stored so long as they remain sound and do not grow too much. We turned all our Potatoes in November and again this week, but it will be necessary to go over them oftener now that the spring months will be in favour of their growing. To allow cooking Potatoes to form long shoots spoils them as much as it does the seed tubers, as sprouted Potatoes soon deteriorate in flavour.

EARLY LEEKS.—Where it is desired to have Leeks of a very large size by August, or for the autumn shows, the seed should be sown at once, and our favourite variety is Sutton's Prize-taker. This is a grand Leek. A few scores of plants will be sufficient for the early batch, and if a little seed is sown in a 6-inch or 8-inch pot the plants may be raised in this way. The soil in which the seed is sown should be rich and firm, and not more than a quarter of an inch of soil should be spread over the seed. It will germinate in a temperature of 60° or 65°, and as soon as the plants can be handled they must be transplanted to shallow boxes, giving them good soil and placing them 2 or 3 inches apart. They may be kept in these until they are planted out in April or May, and if liberally treated they will be specimens 3 lbs. or more in weight by the middle of August.

RAISING PEAS UNDER GLASS.—In backward localities, where nival springs are common, the open air Peas do not always grow freely at first, and it is a good plan to raise the early batch under glass. We have tried all ways of sowing the seed, and only practise and recommend one now. This is to take a number of 3-inch pots, place a few leaves in the bottom of each, three-parts fill them with good soil, place a number of Peas in each, and cover firmly. They are then stood in any pit or house where there is a temperature of 60°, or a little more, and the young plants appear in a week. By keeping them rather cool and near the glass they grow robustly, and if sown now the plants would be in excellent order for planting out by the 1st of April. A few hundred pots of Peas will make several good rows when planted out.

FRUIT FORCING.

PEACHES AND NECTARINES.—*Earliest House.*—Disbudding is a process that requires to be done cautiously, especially with early forced trees. Commence by taking a few foreright shoots first, then proceed in a similar manner with the others. Care must be taken to leave a shoot at the base of the present bearing shoot, to supply its place next season, and another must be left on a level with or above the fruit to draw the sap to the fruit; the upper shoot should have its point pinched out at the third leaf, unless it be necessary for the extension of the trees, when it should be trained in its full length. If the trees are not full-sized, the shoots necessary for the formation of the trees must be trained 12 to 15 inches apart. Instead of disbudding extensions—shoots not required for laying in to form the bearing wood of next year—pinch the superfluous shoots at the third leaf, and to one afterwards, and they will form spurs. The bearing shoots on extensions must be 15 to 18 inches apart, it being of primary importance in the cultivation of the Peach and Nectarine that the shoots be trained so as to admit of the foliage being fully exposed to light and air; therefore avoid overcrowding, and the questionable practice of leaving shoots that must be removed at a more advanced stage of growth. When the fruits are set and swelling, give an occasional syringing in the early part of fine afternoons; but avoid heavy syringings at this stage, as the foliage is tender and evaporation not great. Sufficient moisture should be maintained in the atmosphere by damping the path and border in the morning and afternoon. When the fruits swell and are too thickly placed, remove a few of the smallest and those on the under side of the branches, but do not thin them too severely—thinning, like disbudding, should be done gradually. If fermenting materials have been

used inside the house, still continue to turn and add fresh but properly sweetened, as rank manure will give ammonia too powerfully, and the foliage and young fruit will be injured. Where there are evaporation troughs, charging them with liquid manure will be useful not only in preventing the atmosphere becoming too dry in the immediate vicinity of the pipes, but in giving off ammonia. Where there are not fermenting materials or evaporation troughs damp the house in the afternoon after the foliage becomes dry with liquid manure—the drainings of the stables diluted with six times the bulk of water. If aphides appear fumigate moderately on two or three consecutive evenings, but very carefully, as an overdose is fatal to the foliage and tender fruit; or syringe with a solution of 2 oz. soft soap, and 1 pint tobacco juice to a gallon of water, straining it through tiffany or muslin before use. It is good against aphides, red spider, and mildew. If the latter appear dust promptly with sulphur, and keep the house rather drier and more freely ventilated; but this must be done carefully, as cold draughts give a check which may cause the fruits to fall. In clear frosty weather it is safer to allow the temperature to rise a little higher than to open the ventilators too much. In watering inside borders liquid manure will assist weakly trees to swell their fruit in the first stage, and always apply it or water slightly in advance of the temperature of the house.

Trees Started Early in the Year.—When the trees started early in the month are swelling their buds and showing colour, the night temperature may be advanced to 45° to 50°, and 50° to 55° in the daytime by artificial means, and 60° to 65° from sun heat, ventilating freely above 55°, and leave a little constantly at the top of the house. Cease syringing the trees, but damp the border occasionally so as to maintain a genial condition of the atmosphere.

Trees to Afford Ripe Fruit Early in July.—The house must now be closed, syringing the trees two or three times a day, turning on the heat in the morning for an hour or two or to raise the temperature to and keep it at 50° through the day, above which ventilate freely, not allowing an advance to 65° without full ventilation, and at night fire heat should only be used to prevent the temperature falling below 40°. Syringe the trees twice a day. The inside border must be well watered, if need be repeatedly, to insure it thorough moisture throughout.

Later Houses.—The buds of the trees in these, notwithstanding the severe weather, are swelling fast, therefore ventilate freely in bright weather, so as to retard them as much as possible, not omitting to water inside borders if they show the least indication of dryness.

CUCUMBERS.—Seedlings from the sowing made at the beginning of the year should be earthed up in preference to potting, about which there must not be any hurry, and keep them near the glass so as to have short stems, maintaining the temperature at 70° to 75°. If the seeds were sown in frames, linings to the beds will be necessary with mats over the lights at night. If, however, the material for making up the bed for the seedlings is only now in a fit state, choose a site for a bed with a southern aspect having shelter from the north, as that of a hedge or wall. If the ground be rather higher than the surrounding level it will be an advantage, and if not place some peasticks so as to keep the materials from being saturated by the wet of hollows. Beat the dung and leaves well down with a fork as the work proceeds, making the bed about 5 feet high at the back and 4 feet 6 inches in front, which will allow for settling, as it will do about a third. A few peasticks placed across and along the bed at intervals not only prevent overheating but admit of the heat from the lining being conveyed to the interior of the bed. For early work we have frames with double sides, formed by placing inside a lining of half-inch boards, less in depth by 9 inches at the back and 6 inches in front, than the frame, kept an inch from the box by nailing narrow strips of board upright on the inside of the box, so as to form an inch cavity all round the inside, and thus top heat is furnished by means of linings against the sides of the box. The bed should be but a few inches larger than the box, so as to admit of linings from the bottom of the bed. The frame should be put on, which will raise the heat in about a week. Level the surface of the bed, replace the frame, and put in sufficient manure to raise the inside to within 4 inches of the top of the inner frame or cavity, placing sawdust or dry leaf soil, or spent tan, on the dung for plunging the pots in. For raising the plants 3-inch pots are half filled with soil—light, rich, and moist—placing one seed in the centre of each pot, and covering lightly about half an inch with fine soil. Space is left by this plan for top-dressing the plants, which is preferable to potting them. A square of glass may be placed on each, which will hasten the germination, but it must be removed as soon as the plants appear. The plants from a sowing made early in February in the manner described will be ready for planting in March, and will afford a supply of fruit nearly as early as those from seed sown early in January. Seed having been sown early, the plants will be fit to place out soon, and the fruiting bed should be prepared for their reception, forming it as above described for the seedlings, only using manure for levelling the surface of the bed, and forming a ridge or hillock of soil in the centre of each light, about 10 inches deep, and a flattened top of about that width across, the surface of the bed being covered lightly with soil. The best soil for Cucumbers is undoubtedly fibrous loam inclined to be light rather than heavy, to which is added a fourth in equal proportions of old mortar rubbish and charcoal thoroughly incorporated. The loam must be laid up so as to reduce the turf to the extent of killing the grass; but we find it better to use the turf fresh, and subject it to a temperature of 212°, or a little more, which not only kills the roots of the grass and weeds, but destroys worms, and is one of the best preventives of disease. Manure is best given as a mulch, and in liquid form.

THE BEE-KEEPER.

PRACTICAL BEE-KEEPING.

A LITTLE more than a year ago the attention of bee-keepers was specially drawn to the necessity for practising strict economy in the apiary. This can only be done by keeping accounts of income and expenditure in a methodical and systematical way. The best of memories is apt occasionally to mislead, and few bee-keepers at the end of the year can calculate all the expenses attendant upon the management of the apiary unless they have put down on paper all those trifling sums which are continually being expended during the busy season. It is useless for anyone to attempt to discourse upon the profit of keeping bees if he cannot draw a balance correctly and be able to show the exact amount of his income and expenditure. How often is a man who attempts to persuade his neighbours that he gains a profit from his bees met with the reply, "Ah! yes; but how about the expenses?" Now, if in answer to such a query a balance sheet can be produced showing clearly all capital and current expenses and income, a great point is gained with very little trouble.

Talking of the pleasure and profit to be derived from bee-keeping a few weeks ago to a clergyman who was evidently somewhat sceptical, I was informed that a certain lady was most anxious for every labourer to keep a cow. So great were the profits derived from one she herself had kept, to prove her success she would show gold and silver that had been paid to her for the milk and butter. A truly grand profit! But on inquiry being made it was found that her husband supplied the cow, the food, and labour; the wife received the profit. Is this not sometimes the case with bee-keepers? Are their profits always actual profits? Do these so-called profits actually represent the sum remaining when interest on the capital, all current expenses, including those of maintaining the stocks in the condition in which they were found in the preceding autumn have been disbursed? or are these the result of mere haphazard calculations, liable to mislead and to give a false idea of the benefits likely to arise from keeping bees? There are stocks to be seen in most localities which never yield a profit; the bees work well and produce much honey, but the owner does not keep down his expenses sufficiently to reap the result of his bees' labour. Now, it is the simplest thing in the world to some people to keep an account; to others apparently it is most difficult. But, surely, everyone can take a book with three blank pages in it, head the first page "capital account," the second, "current expenses;" the third, "income." Some may say, What is capital account? It is the money originally expended when purchasing a hive, bees, section racks, and all other appliances in the apiary which are not sold with the honey. So section racks form part of the capital; sections of the current expenses. Again, under "current expenses" must be set down all such essentials as foundation, sections, supers of all descriptions if sold with the honey; and under "income" the proceeds of all honey, wax, and bees sold during the season. If rent is paid it must be put down under the "current expenses," and also interest for the money employed as capital. Before declaring a true profit, rent, and interest—say at 5 per cent.—should always be deducted from the gross income.

To make my meaning quite clear I will suppose that in the past year my account stood thus:—

"Capital Account."	"Current Expenses." (Including rent and interest)	"Income."
£10	£5	£10

My profit is £5. But this is only a true profit provided my stock and appliances are in a condition to realise £10 if sold; if they are not in such condition a further sum must be deducted from my profit in order to bring up the stock to its

proper level. If all bee-keepers will try to keep such an account they will realise still greater pleasure in the future than they have done in the past from the management of their bees. They will discover at what price honey can be sold, leaving a fair profit to the producer; they will be able to satisfy the sceptical that a bee-keeper is a practical man who understands his business and does all he can to derive profit from the sale of his produce. Men will recognise the production of honey as a new industry worthy of support, an industry which may do something to lighten the labour of life, which may do something to educate the mind, to improve the morals, and to make the agricultural labourer find pleasure in gaining profit by a simple, instructive, and entrancing study of bees, their habits and management.—**FELIX.**

NOTES ON BEES.

ON Wednesday, January 19th, the temperature rose suddenly to 48° and a drizzling rain (no sunshine), which rapidly melted the ice and rendered the ground damp and uncomfortable, especially for bees. Some of mine had an airing on the 11th with a temperature of 37° only, but the ground being dry no bees were lost, neither were any lost on the 19th, because they did not fly, although the temperature was much higher than on the 11th. But with my neighbour's over the hedge it was very different; although raining, they availed themselves of the mild day and flew out in great numbers. In consequence of the coldness of the ground many were chilled, and all of them would have been lost had their owner not lifted them and resuscitated them by gentle heating while in paper bags. Now here are two apiaries situated close together, while one suffered nothing from the treacherous day, the other suffered greatly. What is the reason of so distinct behaviour of the bees in the two apiaries? My neighbour is a great advocate for keeping bees warm, so am I, but, as is well known, I give my bees large air space in addition to keeping them snug and dry. I have at the present moment four or five nuclei, and at the beginning of October a common tumbler would have held the bees of the largest swarm, one of these is a Syrian. These nuclei are located in hives equal to twenty standard frames, and while I write I have not as yet seen a dead bee at any one of them. I have one nucleus located in a Stewarton hive of two boxes, the upper one filled with comb and two-thirds with bees, while the under box is empty, the space beneath it and the ventilating floor being 6 inches; 12 inches altogether of space, and the sides of the hives are covered with one thickness of inodorous felt tied loosely, and 4 or 5 inches of straw above, and over that a sheet of iron. It is perfectly dry. The bees are breeding and humming, three dead bees being all that I have discovered since December.

Had it not been that my neighbour lifted many of the chilled bees some of his hives would certainly have succumbed before March was passed. The difference of his hives from mine is, while I give air space he contracts his hives to the smallest possible space, in fact he uses smaller hives at all times than I do, has solid floors, and covers his hives excessively, consequently when a sudden rise of the temperature takes place outside it is more sudden in a stifled hive, which the bees cannot endure without becoming active. But there is another thing, and probably of more importance than covering. It is a well known fact that bees suffer more from long confinement than from cold, however low the temperature may be. Protracted seasons terrify us bee-keepers, not low temperatures. To reduce the risk of losing bees through long confinement I have for many years made a practice of giving all my hives a feed as late in the year as possible, so as not to unnecessarily disturb the bees too much. This past fall I observed my bees flew at least a month later than those of my neighbour, hence their restlessness on the opening of the season.

LANDING STAGES.—Owing to the landing board or stages being wet during the first flight of the bees, they are easily chilled and many bees are lost thereby. To obviate this I have used wire cloth, wickerwork, netting, &c. but as my alighting stages are, as a rule, not exposed, it is seldom any precaution is necessary. If the snow should lie upon and wet any stages, and these not dry when the bees begin their flight, I cover the landing with either comb foundation or thin cork.

TURNING FRAME HIVES UPSIDE DOWN.—Notwithstanding the facilities frame hives afford for inspection by handling frames singly, there are still some bee-keepers prefer to examine their hives from beneath, just as they used to do with their straw ones. Some ten or twelve years ago several persons said that if it was not for the frames falling out when turned up they would have some. To meet their wants I undertook to make some for them. I suspended the frames in the middle, similarly to what I described in a late number, the

frames of the reversible ones; and to prevent them falling out when turned upside down I put a sliding fillet of wood above the suspenders, and which could be wrought from the outside of the hive, so that they had only to be drawn back when the frames were to be removed. I exhibited this hive along with another one of peculiar construction at the Caledonian Apiarian Society Show in 1877. The novelty of this hive consisted of an arrangement for having the ends of the frames close or open—i.e., the space between the frame and side of hive close or open. A key wrought the arrangement from the outside, which instantly closed the space when desired. I never was in favour of close-ended frames, and do not advise them.

SMALL SECTIONS.—The following year Mr. D. Wood, Kilmuir, exhibited a variety of sections, from about 2 ozs. and upwards. His motive for small sections was to have honeycomb in a presentable form without cutting for the table. When I visited that gentleman later in the year he showed me these small open-ended sections being filled in the hive. Again we have had in Scotland a decade back, what the Canadians have so captivated the members of the B.B.K.A. with in 1886.—**A LANARKSHIRE BEE-KEEPER.**



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

TO CONTRIBUTORS.—Our friends who favour with communications on controversial subjects will oblige by sending their articles as soon after they receive the Journal as possible. Our space is practically filled on Monday, and only articles that are "expected," and which arrive on Tuesday, can, as a rule, be inserted in the current issue. For this reason we are compelled to hold over some that we would have readily inserted this week had they reached us a day or two sooner.

Weather Records (Stormy).—If you write to G. J. Symons, Esq., 62, Camden Square, London, N.W., stating your requirements, and enclosing a stamped directed envelope for reply, we think you will be favoured with the information you seek.

Odontoglossum and Dendrobium (A. E. W.).—We should think that the growths have not been sufficiently matured, and they would have been benefited by a slightly drier position with free exposure to light. They would not have succeeded in the greenhouse, but a suitable situation could no doubt have been found for them in the stove. It is not sufficient to obtain apparently vigorous growths; these must be well matured, or they seldom flower freely.

Romneya Coulteri (E. D.).—The plant you inquire about is a perennial allied to the Poppies, but is only hardy in warm southern districts, elsewhere it would need protection during winter. It is not usually very free flowering, but grows satisfactorily in a rather moist soil, the large white flowers being very handsome. When in good condition it attains the height of 4 feet, forming bushes nearly as much in diameter. Petroleum has been known to injure the young wood of fruit trees, but if you make a mixture of soft soap in water and petroleum in equal quantities, it can be safely applied and will destroy the insects.

Chrysanthemum Critique (A Grower).—Mr. Garnett's critique on Mr. Molyneux's work is "not forgotten," nor is it likely to long remain unpublished. It is an able production, and though not in conformity with Mr. Molyneux's teaching in every particular, it will be calculated to promote the sale of his work; and as that work has been for some time reprinting, we were reluctant to cause disappointment to an increased number of applicants who could not be promptly supplied with copies. The first edition was not half large enough.

Sal-Ammoniac for Pipe Joints (Novice).—We have never weighed either the filings or sal-ammoniac. This is not necessary, for with a little practice the right quantity of the last named will be readily arrived at. If you take sufficient iron filings for, say, half a dozen joints, a piece of sal-ammoniac as large as a Cobnut, broken fine and mixed with the filings, will prove ample. You had better err on the side of using too little than go to the other extreme. Too much sal-ammoniac will result in the destruction of the metal, and finally the bursting of the joints. With the filings mix also about one-seventh of red lead in a dry state, then sufficient water to

moisten the whole. This, if well hammered up, will make safe and sound joints.

Vine for Cool House (*Inquirer, Dublin*).—As you exclude Black Hamburghs there is no question of Madresfield Court being the finest black Grape for a cool house. It is large in bunch, berry, and of superior quality, doing excellently in a cool or moderately heated house. In an unheated house the sun heat must be carefully husbanded, and then ripening is assured in some seasons and districts. Madresfield Court Grape is liable to crack, but this can be prevented by free ventilation, and not giving water at the roots after the Grapes commence ripening. When they change colour for ripening give the border a thorough soaking with water or liquid manure, put on a covering of manure about 2 inches thick, and then 4 to 6 inches thickness of dry material of a rougher description—the finest at the bottom and the roughest at the top, and the Vine will not require any further supply of water for the season. The mulching with the dry material prevents the rising of moisture, and with judicious ventilation this grand Grape will not only not crack, but keep for some considerable time, or until the end of November or later; this, however, can only be effected in a heated house so as to maintain a temperature of 45° to 50°, and for expelling damp. In an unheated house it will not keep nearly so long; indeed, Grapes will not keep long in a cold house after they are ripe, but a great deal depends upon the weather. If you cannot give the special treatment advised, Black Champion would probably suit you, or, if you require a white Grape, Foster's Seedling.

Nectarine (*Idem*).—You do not say whether you require an early, mid-season, or late variety. The best early Nectarine is Lord Napier; mid-season, Pine Apple; and late, Victoria. They were raised by Mr. Rivers. If you require but one, and are not particular as to season, have Victoria, which not a few good gardeners consider the best Nectarine in existence.

Manuring Vine Border (*Aliquis*).—Half-decayed manure is best applied to the surface, and allowed to remain so as to keep the soil moist, attracting the roots to and keeping them near the surface. The manurial matter will be washed down by watering or rain. A heavy covering is not desirable, especially on outside borders, as it deprives the soil of the benefit of warmth from the sun in spring, and wholesome atmospheric influences. A thin mulching of rather lumpy material is best, adding to it from time to time as it becomes reduced, not having it deeper than 2 or 3 inches. In winter it will require to be deeper, so as to afford the necessary protection to the roots of the Vines in outside borders, and should then be of a littery nature. If the roots are so deep as to allow of the soil being removed to admit a dressing of manure, they are too deep, and it would be advisable to remove the soil over the roots so as to leave them covered not more than 3 inches with soil, and then apply a dressing of good manure to the surface. Comparatively fresh manure is preferable to old and much-decayed for mulching, whether it be stable or farmyard, the strawy or littery portions being removed.

Peach Buds Falling (*A Fifteen-years Reader*).—The cause of the buds falling is not due to the dressing with the insecticide, for at the strength named we have used it repeatedly without any injurious effects; but the most general cause of the evil is dryness in the late stages of growth, which causes the spread of red spider, and the premature ripening and fall of the foliage. Keeping the trees too dry at the roots after the leaves fall or during the resting period is a very general cause of the buds dropping. To one of those causes or both we attribute the falling of the buds in your case rather than to the insecticide named, assuming it has been applied judiciously. We use a composition formed of 6 ozs. soft soap, dissolved in half a gallon of hot water, adding half a gallon of tobacco juice, a quarter of a pint of spirits of turpentine, and as much sulphur as will form a thin cream. It is kept well mixed, and is fatal to every kind of aphid, red spider, thrips, scale, mealy bug, and good against mildew. It is applied with a brush, being careful not to dislocate the buds. Any of the advertised insecticides are safe, only follow the printed directions carefully, and as we have tried all we can vouch for their efficacy and usefulness.

Lygodium scandens (*Idem*).—Fresh growths are not produced from the old fronds; but the young growths spring directly from the root, and as they advance the old fronds become sere and die. The plan you have hitherto practised is the proper one.

Carnation Leaves Spotted (*R. B.*).—If there are faint signs of spot or mildew on the "grass" when layered, the evil is almost sure to spread after the plants are rooted, potted, and stored in frames. Even when the growths are clean we have found them more liable to spot when potted late than when established in pots earlier, so as to insure active root action in the autumn. Great care in watering the plants and ventilating the frames is necessary in the winter, anything approaching a stagnant atmosphere being injurious. It does not follow that "plenty of air" should be given "day and night constantly," regardless of the weather, as on some very damp foggy days we have found it best to keep the frames closed. Lifting the lights and forcing them down rather sharply is often a better method of changing the air than propping them up when the air apparently is motionless. Not a drop of water should be spilled on the foliage or between the pots, a supply being only given to the plants that need it on the mornings of dry days. All the worst leaves should be removed from your plants, the earth in the pots stirred, a layer of dry ashes spread for the pots to stand on, and sulphur dusted on the leaves of plants that are slightly affected; then with greater care in watering and ventilating the plants may improve, or at least such of them that are not beyond recovery.

Names of Fruits.—The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and surplus fruits beyond that number cannot be preserved. (*H. E.*).—London or 5-crowned Pippin. (*P. Green*).—Verulam.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry

cotton wool the worst. Not more than six specimens can be named at once. (*C. S.*).—*Cælogyne ocellata*, the other specimen was not received.

COVENT GARDEN MARKET.—JANUARY 26TH.

No alteration, with supplies quite equal to the demand. Market quiet.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples	1	6	4	0	Melon	0	0	0	0
" Nova Scotia and					Oranges	100	0	12	0
Canada, per barrel	10	0	13	0	Peaches	per doz.	0	0	0
Cherries	1	0	0	0	Pears	dozen	1	0	2
Cobs	100 lb.	60	0	70	Pine Apples English ..	lb.	1	6	2
Figs	dozen	0	0	0	Plums	1	0	2	0
Grapes	lb.	0	6	3	St. Michael Pines ..	each	2	0	5
Lemons	case	10	0	15	Strawberries	per lb.	0	0	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes	dozen	1	0	0	Lettuce	dozen	1	0	1
Asparagus	bundle	0	0	0	Mushrooms	punnet	0	6	1
Beans, Kidney ..	per lb	0	6	1	Mustard and Cress	punnet	0	2	0
Beet, Red	dozen	1	0	2	Onions	bunch	0	3	0
Broccoli	bundle	0	0	0	Parsley	dozen bunches	2	0	3
Brussels Sprouts ..	1/2 sieve	2	0	2	Parsnips	dozen	1	0	2
Cabbage	dozen	1	8	0	Potatoes	cwt.	4	0	5
Capsicums	100	1	6	2	" Kidney	cwt.	4	0	5
Carrots	bunch	0	4	0	Rhubarb	bundle	0	2	0
Cauliflowers	dozen	3	0	4	Salsify	bundle	1	0	1
Celery	bundle	1	6	2	Scorzonera	bundle	1	6	0
Coleworts	doz. bunches	2	0	4	Seakale	per basket	1	6	2
Cucumbers	each	0	8	0	Shallots	lb.	0	3	0
Endive	dozen	1	0	2	Spinach	bushel	8	0	4
Herbs	bunch	0	2	0	Tomatoes	lb.	0	6	1
Leeks	bunch	0	8	0	Turnips	bunch	0	4	0

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.
Aralia Sieboldi ..	dozen	9	0	18	Ficus elastica ..	each	1	6	7
Arbor vitæ (golden)	dozen	6	0	9	Fuchsia	per dozen	0	0	0
" (common) ..	dozen	6	0	12	Foliage Plants, var.	each	2	0	10
Azalea	per dozen	24	0	36	Hyacinths	per dozen	6	0	10
Bedding Plants, var.	doz.	0	0	0	Hydrangea	per dozen	0	0	0
Begonias	dozen	4	0	9	Ivy Geraniums ..	per dozen	0	0	0
Cineraria	per dozen	9	0	12	Lilium anatum ..	per doz.	0	0	0
Chrysanthemum ..	dozen	0	0	0	Lobelia	per dozen	0	0	0
Cyperus	dozen	4	0	12	Marguerite Daisy ..	dozen	6	0	12
Dracena terminalis	dozen	30	0	60	Mignonette	per dozen	0	0	0
" viridis	dozen	12	0	24	Myrtles	dozen	6	0	12
Erica, various ..	dozen	9	0	12	Palms, in var. ..	each	2	6	21
" hyemalis ..	per dozen	12	0	24	Pelargoniums, scarlet	doz.	6	0	9
" gracilis	per dozen	0	0	0	Poinsettia	per dozen	12	0	18
Euonymus, in var.	dozen	6	0	18	Primula sisensis ..	per doz.	4	0	6
Evergreens, in var.	dozen	6	0	24	Solanums	per doz.	9	0	12
Ferns, in variety ..	dozen	4	0	18	Tulips	per doz. pots	6	0	9

CUT FLOWERS.

		s.	d.	s.	d.			s.	d.	s.	d.
Abutilons ..	12 bunches	2	0	4	0	Lily of the Valley, 12	sprays	0	9	1	6
Arum Lilies ..	12 blooms	4	0	6	0	Marguerites ..	12 bunches	2	0	6	0
Azalea	12 sprays	1	0	1	6	Mignonette ..	12 bunches	0	0	0	6
Bouvardias ..	per bunch	0	6	1	0	Narciss, Paper-white, bunch		0	4	0	6
Camellias ..	12 blooms	2	0	4	0	" White, English, bunch		1	3	1	6
Carnations ..	12 blooms	1	0	8	0	Pelargoniums, per 12 trusses		0	9	1	0
" ..	12 bunches	0	0	0	0	" scarlet, 12 trusses		0	6	1	0
Chrysanthemums	12 behes, 12	0	24	0	0	Roses ..	12 bunches	0	0	0	0
" ..	12 blooms	0	0	0	0	" (indoor), per dozen		1	0	2	0
Cornflower ..	12 bunches	0	0	0	0	" Tea.. ..	dozen	2	0	4	9
Dahlias ..	12 bunches	0	0	0	0	" red (French) ..	dozen	2	6	3	6
Epiphyllum ..	doz. blooms	0	6	0	0	Parmo Violets (French)		6	0	7	0
Eucharis ..	per dozen	4	0	8	0	Poinsettia ..	12 bloom	4	0	9	8
Gardenias ..	12 blooms	12	0	24	0	Primula (single) ..	per bunch	0	4	0	6
Glaudioli ..	12 bunches	0	0	0	0	" (double) ..	per bunch	1	0	1	0
Hyacinths, Roman, 12	sprays	1	0	1	6	Stocks, various 12	bunches	0	0	0	0
" ..	12 sprays	6	0	9	0	Tropæolum ..	12 bunches	1	6	2	0
Lapageria, white, 12	blooms	2	0	4	0	Tuberose ..	12 blooms	2	0	4	0
Lapageria, red ..	12 blooms	1	0	2	0	Tulips ..	doz. blooms	0	9	1	0
" longiflorum, 12	blms.	0	0	0	0	Violets ..	12 bunches	1	6	2	6
Lilac (white), French, bunch		6	0	8	0	" Czar, French, per bunch		2	0	2	6



SOIL LESSONS.

We have before us upon our writing table a ball of clay that is so hard as to require a knife to scrape any of it into powder, it being hardly possible to make any impression upon it with a thumb nail. We made this ball recently while watching the process of draining some heavy land on a clay farm, the soil of which is more retentive of moisture than any we have met with hitherto. The drains are only 15 feet apart and 22 inches deep, at which depth the chalk is found, and into which a few deep drains will be introduced. The clay burns well, and we burn as much as we can every year, our object being to gradually give the entire farm a thorough dressing of burnt clay, but it is a heavy and expen-

sive business, for there are between 300 and 400 acres of it. Last summer the difference in the crops upon drained and undrained land was so great as to afford ample encouragement for us to persevere in what is really an arduous undertaking. Every year of progress will lighten our labour, not simply because there will be less to be done, but rather that the increasing area of improved soil will afford better crops and a higher return upon our outlay.

This example of our own practice is given to show how impossible it is to lay down rules for general guidance in such work. We must treat every case upon its merits, and take especial care to avoid line-and-rule practice. One general rule we may certainly insist upon, and that is that every kind of soil must be relieved of superfluous water by such means as appears most suitable for each case after close examination and careful thought. It matters not what crop may be upon the land, it cannot thrive without the soil is sound and fertile.

We have said that drainage tends in a very considerable degree to counteract the baneful influence of drought. This fact often proves a stumblingblock to beginners, yet it is not difficult to understand. Soil that is saturated with water is crude and sour, and when acted upon by drought, excessive evaporation takes place, the soil shrinks, cracks, and the drought occurs in a way which it never can do in soft, mellow, well-drained soil. The undrained soil soon settles down into a compact mass, for besides being wet it is generally deficient in mechanical division; the drained soil that is porous and open cannot do this, and under thorough cultivation it continues moist near the surface even in the driest seasons.

Let it be clearly understood that drains at 15 feet apart are only required for heavy land that is very retentive of moisture. It is even necessary to avoid any misunderstanding about the term heavy land, which is applied indiscriminately by farmers to all soil containing much clay. To be quite safe we should say that such close drainage is for very heavy land containing a large proportion of clay—so much, in point of fact, as to be almost suitable for brick-making. For all other land the drains may be farther apart up to a distance of 30 feet. Upon another farm of mixed soil we are now making drains 27 feet apart, and the expense is proportionately lighter. It will thus be seen that each farm has special treatment, according to its peculiar requirements, "wet" fields being taken one by one till the entire under drainage is in sound order.

This all-important matter once set right, we are then able to proceed with our work of cleaning and enriching the soil with fertilisers with confidence, and a feeling of certainty that good results will follow such as it would be impossible to achieve without such preliminary care.

We have heard doubts expressed with that confident tone which is so commonly the accompaniment of ignorance, that it is impossible to raise the temperature of the soil by drainage. If our readers have followed us with ordinary intelligence they, at any rate, will be able to explain why undrained soil must be cold, why drained soil must be warm, and why, too, the atmosphere near the soil must be affected by its condition. For some fifteen years we lived close by a wild uncultivated waste many square miles in extent, and we always found a considerable difference in temperature of the atmosphere when we went from farm land out upon that which lay waste. Much of it was clothed with herbage, upon which cattle and sheep grazed in summer, but it was always late in spring before new growth began, and then the growth was very slow. It fell to our lot to reclaim some of this virgin soil, and it was an interesting and instructive sight to see the marvellous change which drainage and ordinary care wrought in the course of a season or two. Many a useful soil lesson did we learn while engaged in this work, and we were certainly able to make two blades of grass and a few more grow where only one blade had grown before.

(To be continued.)

WORK ON THE HOME FARM.

Much of the threshing of corn and seeds has been done while snow lay thick upon the land. Barley, Oats, and Clover seed were all threshed in readiness for the spring sowings as well as for sale. Our Red Clover seed is a fine clean sample that will command the highest market price, but the White Clovers are not so good, the seed being deficient both in size and colour. We were only able to save good seed at two of our farms, but even that is worth about £200, and such a sum is not to be despised in these hard times, when we have so severe a struggle to pay our way. The price of Wheat was so much affected by the changes of weather that we refrained from threshing our last stacks till the weather cleared. We do not object to threshing Wheat in frosty weather if it can be disposed of at once; but after such a long spell of frost and snow as we have had recently, Wheat is so much affected by the humid atmosphere which accompanies a thaw that the grain becomes softened and swollen, and then down goes the price. We have begun selling Wheat straw from the last harvest, our highest price being 45s. a ton. The price of straw is much affected by locality, simply because it is such a bulky article that the cost of carriage must always prove an insurmountable obstacle to selling advantageously at a long distance from a farm. This fact accounts for the boast of some dealers that they have been able to purchase good straw at 30s. a ton. There are, however, many things to remember in such transactions; some will purchase straw loose from the stack, others require it made into trusses of a special size and weight; some dealers insist upon sending their own men to truss the straw; then, too, there is the question of carting, all which things affect prices. Dealers are especially fond of buying straw and hay by the stack and not by weight, but we prefer to send each waggonload upon a weighbridge, for no matter how carefully the measurement and computation of the weight of a stack is done, there is usually a dispute about figures. Glad are we to have the ploughs going again, for there are heavy arrears of work upon hand owing to the long frost, and we shall have to push on the work briskly to be ready for the spring sowings. The advantage of having land sound and well drained is now apparent, for such land bears the horses upon it as soon as frost and snow are gone; but wet land remains tender and sodden so long afterwards that the work of cultivation is much retarded. Satisfactory progress is being made with the drainage now in hand, owing to the snow having kept the soil soft enough to enable the men to go on with the work all through the hard weather.

OUR LETTER BOX.

Rent of Farm (W. M.).—If the land is as good in staple as we apprehend it to be, we think the present rent fair and reasonable, and fail to perceive adequate grounds for a further reduction.

Tenants' Valuation (P. S.).—In the absence of information as to the conditions of tenancy it is quite impossible for us to advise you even in general terms, and under no circumstances can we act as valuers in such cases as yours. It is a business matter to be settled by competent men acting for both sides, with, if necessary, a reference to settle any differences between them.

Laying Down Land to Permanent Pasture (H. E.).—As your land is clean plough it at once, and let it remain till March. Then when it is dry enough let it be well broken up and separated by means of a cultivator, horse hoe, or duck's foot harrow, and rolled and harrowed with ordinary harrows till you get a fine seed bed. Then sow the Oats, follow with the grass seed, and harrow the whole of the seed well in so that it is well covered with fine soil. Before the last turn or two of the harrows sow broadcast upon the soil 4 cwt. of fish guano, which quantity is sufficient for your three-quarters of an acre of land. You will require 4½ bushels of Oats, and for the permanent pasture the following mixture:—Foxtail, 7½ lbs.; Cocksfoot, 3½ lbs.; Catstail, 2½ lbs.; Meadow Fescue, 3½ lbs.; Tall Fescue, 2½ lbs.; Crested Dogstail, 1½ lb.; Rough Meadow Grass, 1 lb.; Hard Fescue, 1 lb.; Sheep's Fescue, 1 lb.; Yarrow, three-quarters of a lb.; Perennial Red Clover, three-quarters of a lb.; Cow Grass, three-quarters of a lb.; Alsike Clover, three-quarters of a lb.; Dutch Clover, three-quarters of a lb.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain
	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature		
		Dry.	Wet.			Max.	Min.	In sun.	On grass	
1887. January.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
Sunday .....16	29.996	30.0	29.3	N. E.	34.8	33.2	29.7	33.5	24.6	0.010
Monday .....17	30.070	22.1	21.7	Calin	34.6	36.6	14.9	41.8	14.8	0.158
Tuesday .....18	29.964	38.3	37.9	E.	34.4	40.9	20.4	46.3	18.3	0.021
Wednesday .....19	30.097	47.2	46.4	Var'ble	34.3	52.2	37.8	61.3	34.7	0.152
Thursday .....20	30.403	37.6	35.3	N.	36.8	43.9	36.6	67.6	31.1	—
Friday .....21	30.661	34.9	34.2	S W.	36.2	41.8	31.8	51.2	25.2	—
Saturday .....22	30.540	41.1	39.1	N.	36.2	42.8	34.6	47.5	31.7	—
	30.247	35.9	34.8		35.3	41.6	30.0	49.9	26.3	0.342

REMARKS.

- 16th.—Slight snow in early morning, and again in the afternoon; gloomy early, clear at night.
 17th.—Dull and foggy early, sunshine at midday, then dull and foggy again.
 18th.—Very foggy all day, so dense in afternoon as to necessitate gas by 3 P.M.
 19th.—Fine, with a fair amount of sunshine, and very warm; heavy rain at night.
 20th.—Bright, fine, and cool.
 21st.—Bright and pleasant.
 22nd.—Cloudy, but dry and pleasant.
 A variable week, with considerable range of temperature, but the mean only about 2° above that of the preceding week, and still below the average.—G. J. SYMONS.



COMING EVENTS

3	TH	Linnean Society at 8 P.M.
4	F	
5	S	
6	SUN	SEPTUAGESIMA.
7	M	Society of Arts, Cantor Lecture at 8 P.M.
8	TU	Royal Hort. Soc'y, Committee Meetings at 11 A.M. Annual General
9	W	[Meeting at 3 P.M.]

THE BEGINNING OF WISDOM.

LET it at the outset be explained that the above heading is borrowed from a newspaper, and has reference to the subject of hardy fruit culture. About a fortnight ago a paragraph went the round of the press relative to the grubbing up of some orchards in Kent. This was evidently regarded as the death knell of hardy fruit culture in this country; and the cause of death was what? a "plethora of fruit." That and the high prices charged for fruit in shops formed the subject of a leading article in the *Daily News* recently. This was followed by so many letters that the Editor had to close his columns in three days against further correspondence. No better evidence could be adduced of the great public interest that attaches to the question of fruit. It proved too great even for a great newspaper, and was dismissed with a few significant remarks, some of which I will cite. "The reason" (of fruit being dear when in such great abundance) "is, we are told by the fruiterers, because the middlemen absorb all the profit. The suggestion that producers should themselves take the distribution in hand comes with a curious persistence, and no one seems to have a kindly word for the middleman. He has not thought proper to plead in his own defence, and we are reluctantly compelled to regard his silence as a sign of conscious guilt." In respect to market salesmen one correspondent pointed out that their practice in Covent Garden is to charge, not on a per-centage of the amount realised, but 6d. per sieve (a bushel) and 3d. per half sieve whether the sales are of Greengages at 18s. in a year of scarcity, or of Apples at 1s. in a year of plenty. The production of fruit is referred to as follows:—"One of our correspondents gives a humiliating picture of the old half sapless Apple trees that abound in so many of our orchards, and tells us we cannot do better than go on 'grubbing' till they all disappear. Yet it was the grubbing or rooting out that, when we first heard of it, excited our liveliest apprehensions. We are rejoiced to learn that grubbing is the beginning of wisdom." As I happen to be the correspondent above alluded to I may as well say over again here what I said in the newspaper, for there must be a vast number of "Journal" readers who did not happen to see the original discussion. My object in writing will be apparent—namely, to encourage the uprooting of profitless trees and the raising of thrifty orchards by planting better varieties in good soil, as undoubtedly the remarks that had appeared were calculated to discourage planting, and thus to play into the hands of foreign competitors in supplying our markets with hardy fruit. I wrote:—

The necessity for the destruction of orchards in Kent may be
No. 345.—VOL. XIV., THIRD SERIES.

locally inconvenient, but if we take a broad glance over a great subject the circumstances are not to be seriously deplored—at least so far as the "grubbing" is concerned, the method of disposing of fruit being quite another matter.

Kent is famed for its orchards, and undoubtedly some of them yield fine fruit, but not all; and those trees that bear good crops of superior fruit will not be destroyed. This orchard grubbing, that may at the first sight appear unfortunate, is a hopeful sign, indicating, as it does, the recognition of an important fact—namely, that low grade or inferior fruit can no longer be profitably grown in this country. It may be asserted, with the greatest confidence in the accuracy of the statement, that there are thousands of trees, even hundreds of acres of orchards in Great Britain, that simply encumber the ground; and it is the trashy character of their produce that lowers the average quality of home-grown fruit so seriously as to afford such a splendid opportunity for American growers to compete successfully in our markets.

Far more deplorable than the grubbing of a few orchards in Kent is that enterprising Transatlantic cultivators practically "hold the field" in the market supply in this country of the most serviceable of all fruit—Apples. Not last year only, when the English Apple crop was light, but every year barrels of American Apples abound in London and all large cities and towns; and more than this, and more significant, they have precedence in country towns and villages, where there is land all around that would grow equally good fruit if young orchards of the best varieties alone were established. The fruit trees in many English orchards and gardens are gaunt, gnarled, canker-eaten, lichen-laden spectres—picturesque no doubt, but not capable of affording fine, juicy, well-fed fruit, even if the varieties were good, and it is quite a matter of chance whether they are or not, the inferior usually predominating. Our successful competitors "over the water" saw the coming collapse of the British fruit supply. They perceived the deteriorating orchards, observed the negligence in planting the best market sorts extensively and systematically, and made provision for supplying the deficiency in their own distant land. They have done the work well, and now have extensive orchards of thrifty trees in the zenith of vigour, of sorts that command attention by their size, symmetry, and appearance; and they can afford to pay higher rates for wages than prevail in this country for the labour requisite in cultivating, gathering, and packing the crops; then, further, afford to send them 3000 or 4000 miles to market profitably, while tons of a British fruit grown on British soil cannot be disposed of at anything approaching a remunerative price.

As to "soft" fruit—Plums, Strawberries, Gooseberries, Currants, and Raspberries—that which is converted into jam, should be preserved, so to say, "on the spot." The waste and loss incurred in sending thousands of tons of raw fruit to London and other populous centres to be boiled down and "mixed" must be enormous. The next time Mr. Gladstone raises his powerful voice on the jam question it is to be hoped he will be able to show that it is better to take bags of imperishable sugar to the fruit than to convey perishable fruit to the sugar.

Lord Sudeley's fruit is converted into jam "on the premises." His lordship is not, I think, grubbing up orchards and diminishing his fruit supply, but rather increasing it; and I should not be surprised if his "takings" for raw fruit during the past year were nearer £10,000 than £5000. There is no reason to "fear the foreigner" in the production of hardy fruit if we make the best of our resources at home.

Many letters followed. An Essex cultivator stated that his Apples sent to Covent Garden last year realised 8s. to 9s. a bushel, his crops of Golden Noble, Cox's Orange Pippin, Ecklinville, &c., netting him £500. He describes fruit growing well carried out as profitable and laughs at American competition. Mr. William Paul, of Waltham Cross, gave a good hint, founded on experience, in the advocacy of growing early and late varieties mainly when foreign consignments are not arriving. We were told also by Mr. G. Looseley that Messrs. Lane & Son, of Berkhamstead, preserved their Plums "on the spot" last year or the crop would have been lost; and lately made a welcome distribution of jam to their men. Mr. F. J. Smith, of Covent Garden, recommends the higher culture of the best varieties, packed to arrive in the markets in the best condition, then will home-grown fruit be profitable, but he does not quite see who is to buy "anybody and everybody's home-made jam."

A few semi-despairing letters appeared, but the majority display a consciousness of the ability of home growers to supply our markets with produce that by its excellence would command a ready sale. It is rare indeed that there is a plethora of first-class fruit; it is the inferior that drags the market and gives satisfaction to no one, for if the public will not buy, obviously the grower must lose. There are vast quantities of fruit sent to market which, instead of being tempting, is repulsive. The best sells readily enough, and the sturdiest of protectionists, and most exacting of fair traders, will not purchase comparatively inferior English fruit if they can obtain superior foreign produce at the same or a lower price. Raise the standard of quality of home grown fruit, and increase the quantity of that high quality, and a "taste" for fruit as a "regular article of diet" would soon be created; then, as Mr. William Paul suggests, the increased sales of retail dealers would allow them to sell at smaller profits than when the demand is fitful and limited. When it is remembered that healthy trees of superior varieties occupy no more space than enfeebled trees do of inferior sorts, it follows that the best only should be grown and the worst uprooted, and the more quickly and extensively that system is carried out the better will it be for all.

Mr. Smith combated, I think through misapprehension, the method that is in operation, and which I suggested should be more extensively adopted—namely, the conversion of much of the plethora of soft fruit into jam "on the spot." When Lord Vernon established his butter factory he did not choose London for its site, but planted it, so to say, amongst the cows. It has proved a great success, the butter averaging 2d. a pound more than the produce of individual makers. In respect to fruit, hundreds of tons are sent scores of miles to market, and afterwards sent on another journey to be boiled down. The waste in transit and through fermentation in hot weather is enormous, and such injured fruit cannot be made into jam equal in quality to that made from fruit fresh from the trees. Very large manufacturers contract for fresh fruit, yet, nevertheless, more jam factories in the fruit-growing districts, to which growers could send their crops quickly and cheaply, could scarcely fail to be of advantage to producers and consumers.

The following letter, which has been sent to me, may possibly be worthy of insertion and comment:—

"I have read your letter in the *Daily News*, and am desirous of confirming what you say as to so many of our Kent orchards having far too large a proportion of useless trees in them—i.e., trees cankered, trees barren, or trees producing poor low quality fruit. Upon seeing my trade card you may say, What does a plumber and painter know about gardening? Well, upon the principle that 'a looker-on sees most of the game,' I think I am likely to know, because my trade takes me into very many gardens in East Kent; some of them are attached to cottages, some to mansions, and some are simply market gardens carried on for business.

"Why does not the Kent market gardener grub up half-worn-out trees and plant young trees of good quality, and then wait years for a crop like the American grower does? Because the man in Kent pays yearly about £6 per acre for rent and tithe, whereas the man in America pays less than that amount for the freehold; therefore the man in Kent, having to pay a yearly rent, tries to get a yearly crop, even if a poor one, and even if he has capital, and can afford to wait a few years, being only a yearly tenant, he has no security, and very little inducement to make improvements. The only planting or improvements he dares venture on are such as produce quick returns, say Currant and Gooseberry bushes, or Cherry trees. An alteration of our land laws, giving the tenant some kind of transferable and saleable tenant-right, must soon be made, or else we shall find our fruit markets still more supplied from abroad.

"Next you will ask, Why does not the cottager, or the small country householder, or the gentleman's professional gardener, plant better trees? I reply, because they know very little about fruit trees, and the 'professional' is too much devoted to 'incurved Chrysanthemums,' or 'carpet-bedding' and 'ribbon borders' to learn.

"Will you recommend four or six sorts of Apple trees most suitable for East Kent? When we ask fruiterers or gardeners why we can buy so few Ribston Pippins or King Pippins, we are gravely assured that they have died out—that the old trees are cankered, and that newly planted young Ribston trees would soon become diseased.

"I feel certain that many persons in the suburbs of Canterbury would gladly plant Apple trees in the gardens attached to their houses if they knew what trees were most likely to succeed.

"Thinking that you may perhaps publish the whole or a part of this letter in the *Journal of Horticulture*, I enclose my name, &c. —INVICTA."

My first observation on that letter is this—if a yearly tenant can afford to pay £6 an acre, the case is proved that fruit culture is profitable in England, though it does not necessarily follow that all tenants get a satisfactory share of the profits. Every case on that matter must be judged on its merits.

As regards the cheapness of land in America, the absence of tithe and the lightness of taxes there is the triple set off of (1) a greatly higher wage rate; (2) an enormously greater distance from market (English), necessitating great care and considerable outlay in packing; and (3) the dearth of money. Numbers of American cultivators are rich, but it may not be generally known that many more, and probably the majority, work largely with borrowed money, for which they pay interest at the rate of 8 per cent. per annum. That this is so in one of the western States I have evidence that places the matter beyond a doubt. Under those circumstances, in the work of hardy fruit culture for our home consumption, I think "Britons" should "hold their own."

Extensive fruit culture can only be satisfactorily conducted under reasonably long leases on an equitable basis, though prudent landowners do not hastily disturb good yearly tenants now-a-days. Tithes are doomed, at least in their present incidence.

Compensation for unexhausted improvements granted to tenants by the last Agricultural Holdings Act applies, I think, to fruit trees, provided the trees are planted with the written consent of the landlord, not otherwise; but on this important point I am open to correction.

As regards gardeners, they vary in capacity the same as plumbers do. As a matter of fact, some of the best growers of Chrysanthemums are also the best cultivators of fruit, and take leading prizes for both; and one of the most skilled flower gardeners in the kingdom is the author of an excellent work on fruit culture. "Invicta" has perhaps scarcely seen enough of the "game" to enable him to judge accurately on this matter.

There remains the question of varieties that I am requested to consider. It is not easy to choose "four or six" varieties satisfactorily without knowing whether dessert or culinary Apples are preferred. As four only I venture to recommend Lord Suffield, a well-known early bearing and productive variety; Duchess of Oldenburg, a beautiful dessert or culinary Apple, in use in August and September; Lane's Prince Albert, a great and almost certain bearer of good and attractive fruit; Ecklinville, a valuable Apple, and the tree a good grower and free bearer, the fruit "taking" well in the market. To make up half a dozen add Cox's Orange Pippin, October-January, the best dessert Apple in cultivation; and Warner's King, a very large, late, cooking Apple. Those named are free and early bearers, especially on the Paradise stock, Blen-

heim Orange being omitted because it is the reverse of precocious; but it could not be excluded from a dozen. Early Apples are as a rule more profitable than mid-season if not than late sorts, and the first four named are ready for market before the "Americans" can arrive, though two of them are fairly good keepers, and these with those making up the half dozen can hold their own against competitors come from whence they may.

If the best varieties are plentifully grown in their best condition in this country, American fruit will only be wanted when our home crops fail.

The discussion above referred to was summed up in the following words:—

"Our general conclusion from the inquiry is that a certain want of adaptability to new conditions, which is rapidly becoming a national trait, is at the root of the whole mischief. Fruit is dear because, in the first place, it is foolishly grown; because, in the next, it is foolishly brought to market; and, in the third, because, when it is at market, it is foolishly sold. We want technical education, in fact, in the orchard, in the commission shed, and in the preserving room. These are the conclusions of those who ought to know, and we think that, among them, they contain the solution of the problem with which we set out. That there is something wrong is unquestionable when so few eat fruit, so many would like to eat it, and when there is so much fruit to eat."

From those deductions not many persons will dissent, and an important step in improving our home fruit supply is in the uprooting of practically worthless orchards, and planting young trees of better varieties.—J. WRIGHT.

THE EUCHARIS MITE.

(RHIZOGLYPHUS ECHINOPUS.)

For some time I regarded the Eucharis disease as the result of defective cultivation, for of late years a system has been adopted that deprived this plant of its season of rest, which alone was sufficient to bring about a degenerate state of the bulbs. But when plants were attacked that had been subjected to periods of rest after the completion of growth, other sources of the disease had to be looked for, and upon a close examination of the plants the "mite" was discovered. In spite of the overwhelming evidence that the "mite" is the cause, there are many who still cling to the theory that the method of culture is faulty, and that they could restore diseased plants to their former health and vigour. It is a pity that such knowledge, if it really exists, should be hidden from the majority of cultivators whose plants are suffering from this terrible pest.

Disease and death may result from the varied conditions to which these or any plants are subjected, but I do not believe that the Eucharis mite is the result of a defective system of culture. Those who still believe that disease is due to the plant being deprived of a season of repose or the admission of too much light may at once dispel such theories from their minds; for plants that have been rested and given dense shade have fallen victims. Anyone can prove to their own satisfaction that insects are the cause of the disease, and their thorough eradication is the only method by which the plants can be restored to their former healthy condition. Any such information will be generally welcomed. I believe that the appearance of these insects in gardens in such vast numbers during the past few years is entirely due to the importation of bulbous plants to our stoves and greenhouses. For not only does it commit its ravages on the Eucharis, but on *Pancratiums*, *Vallotas*, *Amaryllises*, *Hyacinths*, *Narcissi*, and other similar plants. The insect that attacks these plants may be of the same species, but a slightly different variety, yet to the practical eye with only a moderate magnifying glass they appear to be exactly the same in each case. What is the Hyacinth disease if it is not the ravages of this mite? I have said that this mite was imported into gardens with other bulbs, and many to whom I have talked about this matter coincide with this view. The imported bulbs of Eucharis candida and E. Sanderiana are in a large measure responsible for the production of this disease in many a garden. It would be interesting as well as instructive if we only knew how many of these imported plants when they began to grow displayed symptoms of this disease, and, through it, failed to do satisfactorily. A very small number are to be found in private gardens in comparison with the numbers that were purchased. Many of those who secured these varieties were also rewarded with the Eucharis mite; while those, and several are known to me, who did not buy them, now have their Eucharises free from the disease and

in perfect health. I have also imported the same insect on *Amaryllis Johnsoni*, which carried ruin to the whole stock of these plants.

Repeated experiments convince me that those who have announced methods of cleaning their plants—freeing them from the disease—have been premature in their conclusions. Those who have followed this course are credited with thorough honesty, the desire to assist those in the same unfortunate position to overcome difficulties and failure having led them astray. I have no doubt whatever that the plants, after being washed and dipped in insecticides or treated to some of the various receipts that have been given, have grown with renewed vigour and were to all appearance perfectly clean for a time. Such has been my own experience, as well as that of others who have refrained from unfolding their methods of procedure until it could be said with certainty that such a course would free the plants from disease, and finally death, which if left alone is inevitable. For a time the bulbs can be cleaned by washing away every particle of soil, the removal of the roots and decaying scales of the bulb, and then steeping them in some strong insecticide yet not to injure the bulbs. This clears away a great number of the insects, in fact all that it comes in contact with: the plants grow vigorously and flower freely after a good growth has been made, until the insects have increased in sufficient numbers again. It may be for six, twelve, or even eighteen months before the full effects of the disease are visible, the length of time depending upon the manner in which the cleaning was done and the strength of the insecticide used. Up to the present time I believe that this is the full extent of eradication that has been effected or can be promised.

I may be wrong, and sincerely hope that I am, but my experience points to the conclusion that the only certain method of stamping out the disease from our gardens is the destruction of all infested plants, and a fresh start with clean stock from some reliable source. This is an extreme measure, but as far as I can see there is no chance of getting at the whole of the insects without destroying the bulbs. The insects are easily enough destroyed when they can be found, but they penetrate so far into the bulbs that they cannot be reached by insecticides. In many instances they follow the roots to the base where they spring from, and often further, even into the heart of the bulb. The last experiment that we are trying is to cut off the base of the bulb, so that two or three scales can be removed—in some cases more, in others less—and then cut them out if they extend towards the interior. This reduces the bulbs very much in size, and we doubt whether they will again emit roots from the base. If they will, the bulbs can be cleaned by this method, but they must be first dried and ripened somewhat, and after the operation thoroughly washed in a strong insecticide.

In our case they are scarcely worth this trouble, for while we are experimenting we are losing time, and a clean stock would with good treatment quickly make a return that would more than cover the first cost. But I am anxious to find out a method of cleaning the plants for the benefit of those who cannot afford to destroy their stock, in fact all who are in less fortunate positions; if this can be done we shall be abundantly repaid for our loss.—WM. BARDNEY.

PEAS—OLD AND NEW.

To grow these well requires more attention and care than are usually bestowed upon them, or we should not hear so many complaints about their not turning out as we see them portrayed in the seed catalogues. Being in the habit of trying a few new ones each year, I am more than satisfied with the results, and think it quite possible to produce them as they are represented.

The treatment I find to answer the best is either to sow the seed on an old Celery ridge or to prepare a trench the same as for Celery—that is, a good depth of soil and manure, and sow the seed the first week in April rather above the ground line than below it. I know many gardeners recommend the seed to be sown below. I never have found them to do so well below as when sown above the level of the ground. They do not grow so tall and are not so liable to mildew. What they appear to want is a good depth of moist soil to grow in, but not stagnant. I always coat the Peas before sowing with red lead to prevent mice taking them. I have tried petroleum, tar, &c., but I find after all red lead is the safest and best. If the Peas are good I only use from six to nine Peas to a foot, mostly in a broad drill and planted in three rows, either 3, 4, or 6 inches apart, and of some strong-growing ones two and three are quite enough to a foot.

I have sown seed before April, but find it a risk, as they often decay in the ground; but if sown about the first week in April they appear to come at once, and have always done the best. One thing I find, they nearly always grow taller than is stated in the catalogues, but if the sticks are a little over the height stated so much the better. I find stopping them a good plan—that is, after the first three or four or five or six pairs of blooms are set nip out the centre. They fill up and also ripen the pods much better and quicker than when not stopped. This is an old-fashioned way of treating early Peas, but I am surprised it is not more practised than it is at the present time. I remember seeing it nearly forty years ago in Kent for the first time. When the Peas are

stopped is the time to give them liquid manure water if the weather is at all dry. We often hear gardeners say there is no better Pea than the old Ne Plus Ultra, and I say it may have some to equal it, but not many to surpass it when we consider colour, flavour, and general produce. This is the class of Pea that pleases all; large pods are only for show.

Carter's Stratagem is a fine Pea for colour and flavour, but I never can get it to crop well; but they are always good. Telephone and Telegraph are two good ones and bear well. Culverwell's Giant Marrow always does well; but a very tall one, nearly 8 feet high, but a fine cropper, Sir W. Lawson; and G. F. Wilson, a good flavoured Pea, and not too tall, from 3 to 4 feet. Pride of the Market, a first-class cropper, and about the same height. John Bull and Sharpe's Triumph are two good full-podded Peas and about 3 to 4 feet high, good flavour and colour. Among the older ones that I have found to do well and are well worth growing for keeping a good supply are Reading Giant, Laxton's Supreme, Conquering Marrow, Laxton's Evolution, old Ne Plus Ultra, British Queen, old Champion of England, Progress for later on. Most of these require tall sticks, but are good croppers, and well repay for the little extra trouble bestowed upon them.—GEO. CLEMENT, *Hareley Manor, near Warwick.*

THE ROYAL JUBILEE AND THE ROYAL HORTICULTURAL SOCIETY.

ON page 45 your correspondent, "F. R. H. S.," appears extremely anxious to raise funds for providing a home for the Royal Horticultural Society in commemoration of the Royal Jubilee. Your correspondent is perfectly right in saying "that every gardener with the slightest loyalty for his Sovereign" ought to subscribe to such a cause. But surely if £10,000 could be raised by gardeners' subscription, might it not be put to a more charitable purpose than erecting a building for the Royal Horticultural Society?

Allow me through the medium of your paper, and as a young British gardener, to suggest that a Society be founded in commemoration of the Royal Jubilee to help gardeners when out of employment or when in the nurseries. While visiting some of the leading nurseries a week or so ago I was greatly struck by the large number of men waiting for places and by the condition of a great majority of them. During this last severe weather there have been hundreds of gardeners out of employment, for as it is well known many of the nurserymen cannot find work for one-half of the men during frost and snow. One individual came to me for help, he was in a most pitiable condition; he said he had been "frozen out" for five weeks, and had not been able to earn a penny, and had a wife and child to keep, which, on making inquiries, I found to be perfectly true, and no doubt there are hundreds of such cases throughout the country. Therefore, if any loyal gardener wishes to commemorate the Jubilee could it not be possible to form a Royal Jubilee Friendly Society, to be kept up by small monthly subscriptions after the capital required is subscribed, and to be carried on after this principle—viz., That a small sum of money be allowed per week to each subscriber during the time he is out of employment provided he has at least one year's good character from his last employer. If such a society could be formed I would readily do my utmost towards it, and it would, I am sure, have many supporters.

Your correspondent seems to think there is too much whisky drunk by young gardeners, and there is no doubt but what he is right on that subject, but probably he forgets that more than half of the young gardeners are taught to get fond of their whisky through the comfortless state of their abode. Many of the so-called bothies are quite destitute of comfort; therefore when such is the case, and the young gardener cannot find comfort at home after his day's work is done, he has to seek it elsewhere, which, too often, is in the public house.

Therefore, if head gardeners would pay more attention to the comfort of the young men under them, there would be less money spent on whisky, and more to spare for better causes. But if something was started in the way I have suggested I would, as I have said, do my utmost towards it, and readily subscribe my guinea, although I have tasted whisky since "F. R. H. S.," and am as yet a young gardener.—C. COLLINS, *Howick.*

ROSE-GROWING FOR BEGINNERS.

(Continued from page 64.)

BUYING THE PLANTS.

Do not buy rubbish. If you know of anyone in your neighbourhood who grows Roses well, when they are in bloom go and ask him to allow you to inspect them. You need not fear a refusal. Rose growers are always glad to show their Roses and to give advice on the subject to anybody. I dare venture to go to any Rose grower and be sure of a welcome, and I am not gifted with more than the usual amount of cheek. Many people, beginners especially, would not like to do this; then the next best way is to go to the nearest nursery, note-book in hand, and take down the names of those varieties you admire. If your soil is light and dry give preference to the white, pink, and lighter shades; if heavy and binding, then you may have an equal number of the darker varieties as well. In selecting the sorts, choose only those which are good strong vigorous growers, avoiding little stumpy things about 8 inches high, which rarely give satisfaction to beginners. About

the middle of October send your list to some respectable nurseryman, describing the soil and situation, and the sort of plants you want, standards or dwarfs—if dwarfs, say if they are to be on the Briar or Manetti stock. My experience is that both give good results. I have had grand Roses on the Manetti, but its weak point is that it perishes so often in the winter. Where the soil is light and poor, and where the Briar fails, the Manetti is well worth a trial. My advice to those about to order standards is most emphatically, "Don't, or you'll regret it." If you must have standards, let them be all Gloire de Dijon, for this grand old Rose seems to flourish and live grown so as no other Rose does. Standards are no good for show blooms, as you will see before you are very long in the business, supposing you buy them, and further, they do not live very long. In mild warm climates on good soil and in sheltered situations, standards, no doubt, do well and live to a great age, but I am writing for the million, and I am sure of this, that wherever a standard does well a dwarf will do better.

HOW TO PLANT ROSES.

Having prepared your ground, get your plants from the nursery about November 1st, and let it be so arranged that the whole business, from the digging up of the plants in the nursery to their being safely planted in your own garden, shall be done as quickly as possible. Please note, that experience has taught me that quick transplanting and careful planting have much to do with the success or failure of the first year's blooms, and also of the permanent well-being of the plants. Some people, not beginners either, but those who ought to know better, seem to think that so long as a plant or shrub is only half killed in the process of transplanting, that there is no harm done. These people, it is needless to say, will never be gardeners. Let there be no "heeling in," this being a process by which half the shrubs in the country are destroyed. It is generally carried out as follows—dig a hole in the ground, place the roots of the plants therein, throw a little loose soil over them, stamping it down slightly, and the thing is done, and I cannot help saying that the plants are very often "done" too. Now through very wet weather or other unavoidable circumstances it may be necessary to hold over your plants for some days before planting, and in that case, "heeling in," I prefer to say temporary planting, will have to be resorted to, but it must be done as carefully as planting. Let a trench be dug sufficiently wide and long to take in all the plants. These must on no account be placed in the ground in bundles, but divided and put in two or three at a time, strewing fine soil over the roots and making all as firm as possible. If on opening the bundle on arrival it is found that the roots are dry, these should be dipped into a bucket of water before being put into the ground. Laid in carefully like this, Roses will take no harm for a month; but in wet weather fine soil in such a state that it will fall and fit closely round the roots as it should do is not easy to find. The only way is to get it from under trees or walls, or wherever it may be obtainable, but get it if possible. Again, what is to be done when the Roses arrive in frost or snow? With a shovel if there is snow, or a pick or strong fork if the bare ground be hard frozen, remove the surface, and get down to the soft moist undersoil, when the ground will generally be found fit for laying in Roses or any other shrubs in the manner just described.

Let us suppose that your Roses have arrived at the proper time, and that the weather is fine, the soil falling clean and finely divided from the spade, not binding together in wet lumps. Have your plants by you, and do not expose them to the sun or drying wind; rather place them in shade and shelter while the holes are prepared to receive them. If at all dry plunge the roots into a bucket of water as before directed. These holes should be about 10 inches deep, and from 12 to 18 inches wide, according to the roots of the plants. They should have a layer of old manure in the bottom, on which should be strewed just enough soil to keep the roots from touching the manure, otherwise the roots may rot, and manure so applied will be rather a curse than a blessing—err on the safe side, put in too much soil rather than too little. A few half-inch bones will be a lasting benefit to the plants, and are very desirable if the planting is likely to be permanent. When roots are in a dormant state, as those of Roses are when planted and for some time after, it is better, in my opinion, that no manure, be it bones, or farmyard, or anything else, should be in direct contact with them; it will be quite sufficient, and safer, if the manure be close to them but not touching. Before placing the plants in position examine the roots. "Don't prune the roots when planting," says one authority. He might as well have said, "do not prune them at all," for it would be difficult to perform the operation at any other time. I count the plants I have put in by thousands, and most of them were benefited by having their roots pruned in my humble opinion. The aim of the Rose-grower should be to produce a lot of small hair or thread-like roots, and the best way to do this is to prune back all large fleshy roots, tap-roots they are generally called, making a clean

cut, from which in a short time issue quite a tuft or fringe of the small roots so much to be desired. Another reason why pruning is desirable, is that the roots are kept close round about the plant, so that when you apply the manure you have a tolerably good idea that your plant is getting the benefit of it. Therefore cut back all roots anything thicker than a little finger to about 5 or 6 inches long. Remove all bruised roots also, but preserve as many fibrous or hair-like roots as possible. Round about the collar of the plant, which may best be described as being where the roots end and the trunk begins, may generally be found some dormant eyes, little red lumps or round swellings in the bark, much as if a small pea were inserted under it. These must be cut clean away, or they will quickly develope into branches, or suckers as they are called. Caution.—Be sure before cutting away the eyes that they are not part of the bud which has been inserted in the plant.

As each plant is prepared, place the roots in the hole, spreading them out as much as possible, cover them with a little of the finest soil, then throw on the coarser. When the hole is nearly full the earth must be made very firm, and I always use for this purpose an iron rammer, such as the gas and water people use for making good the roads after repairs, and I go round every plant with this until the soil is rammed down solid. A writer I noticed recently in the *Gardeners' Chronicle* advocated planting without stamping or ramming down the soil at all; he left it to time and the winter weather to settle the soil round the roots. Well, all I can say to that is, that Nature makes the soil firm, and I shall continue to imitate Nature until I can find a better teacher. The great objection to a hole full of loose soil is that water will most certainly collect there, and the roots will have a bad time of it. Anybody who doubts that the roots standing in water is not prejudicial, if there be anybody who does doubt it, may very easily resolve his doubts by placing the roots of a Rose tree in a tub of water for a few days, he will find that the ends of the roots turn black and decay. In planting, care must be taken not to plant too deep; the nearer the surface the nearer the sun and the nearer the air. Canon Hole I think it is who says, "deep planting means disease, debility, and death," and I believe he is quite right. In planting standards or half-standards let the roots be as near the surface as possible. On a light sandy soil, where the heat of the sun penetrates and dries the soil to a considerable depth, Roses may be planted deeper than on cold heavy clays; but even on a light soil I should prefer shallow planting, and should endeavour to protect the roots from becoming too dry by means of mulching [see mulching]. In planting dwarfs or plants budded on or below the ground line, plant them so that the union of the stock and scion shall be just below the surface, say 1 or 2 inches. This applies to all ground-worked plants, either on the Manetti, seedling Briar, cutting Briar, or Grefferie. Standards and half-standards will require to be firmly staked and tied as soon as planted, for plants rocked to and fro in the wind do no good. Stakes cost a lot of money, especially long ones—another reason why we should grow dwarfs, stakes for which cost very little. All plants may have the shoots cut back to about 18 inches long when planted, which very much reduces the power of the wind over them and in the case of dwarfs obviates the necessity of stakes altogether at planting time, except in very exposed situations. Speaking of stakes, I find that ordinary thatch pegs, which may be purchased at any ironmonger's for about 1s. 6d. per hundred, make capital stakes for dwarfs; they look neat, are durable, pack close together when put away, and so take up very little room.

When the planting is finished a good dressing of manure spread over the surface above the roots will benefit them, keeping off the frost, while the snow and rain will wash the nourishing substances through the soil down to where the roots are. Avoid having holes or inequalities in the ground, as the water will collect there and do the plants no good.

If the weather should be very dry after planting, and the soil apparently so, do not go by the appearance of the surface, but dig a hole, and if it be really dry, it will be better to water the newly planted Roses. Give them a good soaking; slight dewings are no use at any time, and always appear to me to be something like giving a hungry man a small basin of thin soup and a toothpick, in place of a couple of pounds of rump steak and suitable accompaniments.

WHEN TO PLANT ROSES.

Roses may be safely planted any time between October and March, the earlier in the season after October the better, as they make roots, or at any rate prepare for doing so during the winter. If the operation be postponed until spring the plants have no time to establish themselves before they begin to grow, and if the season be dry after planting they will suffer much more than those planted in autumn. Another very great reason why plants should be obtained early is that the purchaser gets better plants, nurserymen naturally selecting the best plants for the first comers. Buyers in

the late spring time, sometimes in return for the same money that would in the autumn have brought them fine plants, receive what may be termed a fair sample of the "riddlins o' creation," together with a letter of apology, regretting "that the plants are rather small," and going on to say that "all the best plants were sold before we had your kind order, &c."—D. GILMOUR, JUN.

(To be continued.)

A WORD FOR PENZANCE BROCCOLI.

In your issue of the Journal for December 23rd, page 557, a review of vegetables appeared from "A Kitchen Gardener," in which he states "that he never saw any good Broccoli connected with the name of Penzance." That is rather a sweeping assertion to make in the face of the many hundreds of acres that are grown in this neighbourhood, and although "A Kitchen Gardener" may not have seen any, it does not follow that there are no good Broccoli to be seen. I can assure him there are plenty, a sample of which I forward for your inspection ("Penzance Early"). Perhaps you will be kind enough to convey to "A Kitchen Gardener" your opinion as to their merits. I have seen better; the cold weather and the terrific gales we have had have not improved them.

The season of Penzance earlies commence in December, and are succeeded by the second earlies and lates, which keep up an unbroken supply until May, and better Broccoli I never wish to see; in fact I do not think it possible to see better than what I have seen here. "A Kitchen Gardener" may not have had the best strain, I do not suppose he had, but that would hardly justify his statement. Again, a different climate might make the change. I think that that might be a probable, if not the chief reason of his failure. I know from my own experience that many good Broccoli that I have seen do well in other parts of the country are here next to worthless; so much so, that I now rely entirely upon the Penzance varieties to succeed Veitch's Autumn Broccoli to keep an unbroken supply, and which, I am happy to say, they do admirably. I find that the second early varieties give the best and hand-somest heads, but these are always good in all varieties, and if "A Kitchen Gardener" has still doubts on the subject, I should have pleasure in sending him a sample of our Broccoli for his inspection.—HY. MOUNT, *Kingwainton, Penzance.*

[The Broccoli heads received are very good indeed; close, firm, and well protected by incurving leaves. We have not seen better samples this year.]

WATERTIGHT ASHPITS.

I MUST imitate Mr. Bardney in adding to former notes. Mr. Bardney complains of my omissions. So far, however, I have not attempted to over-run discussion; I anticipated it would be a long one, and I am content to proceed step by step. Until Mr. Bardney is more inclined to give the principle a trial I think so many details regarding our temperatures piping, &c., would be of no service generally.

The note kindly forwarded by Mr. Horner will, I feel sure, go far to satisfy all, as regards preservation at any rate. Nothing is proved against my theory by showing that red hot iron repels water. If the water is completely thrown off of course none remains to cause oxidation; as hot iron also repels oxygen, no oxidation can occur. This point, then, is cleared up in my favour. Mr. Bardney, like Mr. Riddell, is very careful to mention a perfectly dry place in cooling, but water must not be confounded with steam or vapour, which occupies space 1694 times greater than water itself, and is not so easily subject to repulsion by reason of a continuous supply, as none escapes at the bottom doors until draught is checked by opening the two furnace doors.

It is not for me to deal in detail with problems intended for "Thinker," but I think Mr. Bardney has not advanced far in his later note. With regard to labour and expense in constructing his ash pits to hold water, I may briefly give the items of our first, which is very satisfactory. Coating of cement, bottom, sides, and end, level with ash pit doors, 4s. 6d., labour 2s., total 6s. 6d.

The laws and force of atmospheric pressure must be left out of Mr. Bardney's calculations, who ought, with the same reason, to ask why more accidents occur in mines during such weather, seeing the average height of the clouds during winter is from 1300 to 1500 yards, and from 3300 to 4400, and even more; thus on a clear frosty night, as spoken of by Mr. Bardney, may assume we are atmospherically on equal terms with a clear summer's evening, the smoke ascending in an upright column.

I trespass thus far for the purpose of pointing out two entirely opposite theories intended to agree. Mr. Riddell, in his last communication, would have us believe that a boiler set and not in use would not oxidise rapidly enough, because it was in a perfectly dry place or free from the natural effects of oxygen attracted by damp, while Mr. Bardney goes so far as to suggest that the amount of aqueous vapour finding its way into the stokehole might be sufficient to impede draught.

Regarding the danger of hot air imbibing moisture, I will beg to quote the following extract from the "Engineer and Mechanic's Encyclopedia," by Mr. Luke Hebert, page 521, being one of several experiments to extinguish fires, some extensive and well conducted, experiments recently performed by Mr. Waterhouse at Prestou in Lancashire have shown that steam will speedily extinguish moderately small

bodies of flame, but does not possess the power of preventing a low charring combustion, and that steam impelled against a large fire increases the violence of the combustion in a remarkable degree.—E. BURTON.

ALTHOUGH it may appear to the eye that water is "completely repulsed by red-hot iron," and which Mr. Bardney "maintains," the gases evolved prove conclusively that such is not the case, and that actual contact does take place. The intense heat imparted to water by plunging a piece of red-hot iron into it will rapidly convert the particles immediately surrounding the iron into steam, and at the same time dissipate a portion of the air and other gases which have been dissolved in the water. Part of the steam acting upon the iron is decomposed and the iron oxidised, and thereby liberating the hydrogen, which is found in a free state amongst the gases and vapour evolved.

This means of oxidising iron is an accomplished fact whatever Mr. Bardney and others may "maintain," and by way of verifying this statement I give you the following quotation from "Wilson's Inorganic Chemistry," page 179, par. 466:—"Iron cannot decompose water at ordinary temperatures, but if heated red hot it acts like sodium, with this difference, however, that all the hydrogen is evolved from the water, none remaining in combination with the metal." (When sodium is put into water only half the hydrogen is evolved, the other half, with the oxygen, combining with the metal.) "This property of water is generally illustrated by sending steam through an iron tube like a gun barrel placed across a small furnace, when the iron unites with the oxygen of the water (steam), and the hydrogen is set free; but so complicated and troublesome an apparatus is not necessary for the purpose. If a bar of iron be raised to a full red heat it will be found to decompose water when plunged below its surface. To prove this, all that is needed is to thrust the red-hot bar below the mouth of a gas jar filled with water, when bubbles, apparently of air, will be seen to rise from the iron and collect in the upper end of the jar. These bubbles consist of hydrogen gas mixed with a little air." I may also add that the above is verified by Buckmaster and Brown.

But it is not with water we have to deal, but its gaseous form when treating it as a supporter of combustion; and because some of the results effected by its use for this purpose are antagonistic to the expressed opinions of some, they avail themselves of every plausible argument likely to afford their cause support, while the object for which they profess to be contending is allowed to dwindle into a myth. No. 2 of Mr. Bardney's questions comes next. He wants to know what effect moisture will have upon anthracite coal, coke, and ordinary coal, and also upon salts obtained from sulphuric and hydrochloric acids. Anthracite coal is almost entirely composed of carbon, some kinds are wholly so; and the effect upon it I have stated in another article, also the results when employed as a supporter of combustion when coal and coke are used as fuel. Nevertheless, I may add that coal, being of organic origin, contains sulphur, phosphorus, and chlorine, which will be converted into acids when burned with hydro-carbon; yet they will be carried away by the draught, or, at least, most of them. That portion which is left will form the salts mentioned by Mr. Bardney. But these salts are harmless so far as the bars are concerned, and although a deal could be written regarding compounds of this sort formed and changes effected, it would have no direct bearing upon the subject either *pro* or *con*; but at the same time it is well to bear in mind that water is one of the products of combustion, therefore steam would have no effect upon any of the compounds obtained from the burning fuel.

With No. 3 question Mr. Bardney finishes his literary thunderbolt, and this he has hurled at the head of "Thinker." He asks, "Why does a fire burn more brightly on a cold frosty night than it does on one dull, damp, and foggy?" Gases are elastic fluids, and are far more susceptible of changes of temperature and pressure than either liquids or bodies. The normal pressure of the atmosphere is 760 millimetres, and which is equal to almost 30 inches of mercury, and this is equal to about 15 lbs. to the square inch, so we cannot err far in stating that for every inch of variation of the mercury in a barometer there is a difference of half a pound of pressure upon the square inch when we know that a column of mercury is supported by the atmosphere almost 30 inches in height. This alteration of barometric pressure is not without its influence upon our fires, for on a cold frosty night this pressure is greater than during dull foggy weather; therefore the gases are more compressed, more oxygen being contained in a given measure of air than when the pressure is less. Again, temperature materially affects the expansion and contraction of gases. One volume at 0° Centigrade would become 1.00366 for every 1° of rise of temperature. But if I put it this way I may be better understood. 273 volumes of gas at the normal temperature (0°) and pressure (760 millimetres) will become 274 volumes at 1°, 275 volumes at 2°, and so on, increasing a volume for every degree of rise of temperature, and *vice versa*. Now, we know that the colder the night the greater will be the barometric pressure, and also the greater the contraction of the gaseous envelope which surrounds the globe; and these combined will enable our furnaces to obtain more oxygen—and much more too—from a given measure of air than they could obtain from the same measure when the temperature was high and the pressure less. But besides these, the differences in temperature between the furnace and the external atmosphere will be greater during frosty weather than when foggy, and this in itself is sufficient to cause a material difference in the burning of the fuel, as it will very sensibly

influence the draught. These are the reasons why fires burn brighter in cold frosty weather than they do when dull and foggy.

Now, if Mr. Bardney has any more "fogs" floating about the furnaces at Norris Green, perhaps he will favour us with their nature and finish this matter.

Your correspondent, Mr. Burton, in your issue of the 27th inst., asserts that I admit a "failing in my system, which may to some extent account for the rusting of the bars." What this "failing" is he does not tell your readers—at least, I cannot grasp it, and am of opinion that it must be looked for in another quarter. He then endeavours to make us believe that only a small quantity of water is evaporated by a furnace. Had he stated the conditions—*i.e.*, the size of the fire and its proximity to the water—all would have been right, but as this is not done the statement has a tendency to mislead those unacquainted with the facts.

The furnace and ashpit with which I am about to deal were specially constructed for the purpose of supplying steam as a supporter of combustion, and better adapted for this purpose than those under the supervision of Mr. Burton, to judge them by his statement. The ashpit is a cast iron trough 4 feet 9 inches long, 1 foot wide, and 10 inches deep, but instead of this trough being entirely under the furnace, 15 inches extends beyond the front of it into the stokehole, and with the floor of which it is level. When this trough is full of water there is only a space of 1½ inch between the water and the fire bars. Now, as it is absolutely necessary to maintain a very high temperature in this furnace, and the amount of water evaporated by its influence is much at variance with what Mr. Burton says. In one hour the water in this ashpit was lowered 2 inches by evaporation, and had all the water been immediately under the furnace the quantity evaporated would most certainly have been very much greater. And all must know that the quantity of water dissipated by heat in a stated period depends wholly upon the amount of heat acting upon it.

Mr. Burton is also a little "at sea" regarding the amount of vapour which a fire would "attract." The fire does not attract any vapour or anything else, but the draught occasioned by the fire carries with it all gases and vapours within its neighbourhood, and those that are not utilised by the burning fuel pass unchanged through the fire and chimney to the external atmosphere.

If Mr. Burton's primary object in having water in his ashpits is to preserve the bars I regret to say that his efforts in that direction are entirely futile, as his theory is antagonistic to the natural laws observed in chemistry. And even although carbonised vapour may have the property of converting iron into steel, yet the steel is as susceptible of oxidation as it was before its conversion.

But supposing for a moment that we laid aside these facts, which are all based on a sound chemical foundation, and accepted Mr. Burton's idea that the main object of having water in ashpits was to keep the bars cool, we can easily see that he is in error, for it is at once apparent that the cooling of the bars would abstract a large amount of caloric power from the coal, and detract from instead of adding to the heating power of the furnace, thereby proving the false economical grounds upon which his ideas are based.—J. RIDDELL, *Duncombe Park*.

[We have two other practical letters on this subject for which we regret our inability to find space this week. It will avoid confusion if correspondents await the appearance of those letters before sending further communications.]

GRAPES SHANKING—ITS CAUSES AND REMEDY.

TWELVE years ago I took charge of a vinery planted with Black Hamburgs and Muscat of Alexandria, which looked very well at the time. The first thing I did was to thin and clip them, give them a thorough good watering, and wait for the result. When they began colouring I was very anxious, watching every day for the shanked berries, and I think I had to cut nearly half the berries out. After the Grapes were cut I examined the border, and at last I found a few roots about 18 inches long, so I took out all the exhausted soil from the inside of the house and put in fresh soil. The Vines were about forty years old; a few roots ran into the outside border. Some of my gardening friends persuaded me to pull up the old Vines and plant young ones, but I was not my own master, and wanted a crop the next year, so I carefully laid out what few roots there were into the fresh soil and waited for the result. Of course the Grapes shanked badly the next year, and my employer thought he had spent the money for no good purpose, but I desired him to wait till the next year. I carefully examined the Vine border, and found the roots 3 or 4 feet long in the new border. In the next year I found a great improvement in the Grapes, and gave copious supplies of water. I could see the roots working in the fresh border very fast, and I had but few shanked berries to clip out. The Vines began to improve very fast, and from that time I had very few shanked berries. I was induced by the account Mr. Taylor gave of his Vines to try the extension system on my Muscat, and the third rod which was taken up showed four bunches on every lateral, and ever since then has not seemed to have any vigour in it. This year I have determined to cut it out. I have had some good bunches on the old rod. I cannot understand why the new rods do not grow as strongly as the first one. According to Mr. Taylor the further they run the stronger they would be, but it is quite the reverse here. Black Hamburgs in the past showed signs of oakness, for I found several shanked berries to clip out that I took as

though they want some more fresh loam. I have come to the conclusion that the real cause of shanking was deficient root-action, and the remedy is to turn out the old soil and supply some new. I also believe that many Vines do not have half enough water. The last few years I have taken several first prizes with Grapes out of the old house with no shanked berries.—A GRAPE LOVER.

CHRYSANTHEMUM MDLLE. ELISE DORDAN.

POMPON varieties of Chrysanthemums do not increase so fast as some of the other sections, and novelties of exceptional merit are comparatively scarce. That illustrated in fig. 13, Mdle. Elise Dordan, was exhibited at most of the leading metropolitan shows in November, and has been awarded several certificates, several of the nurserymen who make a specialty of Chrysanthemums having exhibited capital examples of it. The blooms are very symmetrically formed like the well known Model of Perfection, but larger, of a clear bright rosy tint. The plant



Fig. 13.—Chrysanthemum Mdle. Elise Dordan.

is of good habit and very free, rendering it especially useful for decorative purposes.

SCOTCH CHAMPION POTATO.

IN the Journal recently (p. 41) Mr. Murphy, Clonmel, writes about the degeneration of the Scotch Champion Potato, and wishes correspondents to name the most likely sort to take its place as a field crop. Allow me to call attention to White Fortyfold for this purpose. This Potato was raised or selected by Mr. John Clark of Brodie Castle, Morayshire, N.B. It was afterwards exhibited at some of the London shows some years ago by Mr. Robert Farquhar of Fyvie Castle, Aberdeenshire, who, I believe, was awarded a certificate for it, and I think the stock of it was subsequently placed in the hands of an Aberdeen seedsman. Some three or four years ago I was favoured with a few tubers from the raiser, and have grown a few under rather unfavourable circumstances as a garden crop. Last year it turned out better in a fresh position, and I have saved the whole stock to give it a fair trial this year as a field crop, with the object of its taking the place of the Champion. It is certainly of superior quality, being less coarse and with much whiter flesh than the Champion.—R. INGLIS.

FIRST allow me to thank "Thinker" for his kindly observation, which I am hopeful echoes that of thousands and thousands of Englishmen and Scotchmen. "A very widespread desire exists now amongst all classes and creeds for the improvement of Ireland. . . . A practical way of doing good would be for persons who have strong-growing varieties of Potatoes that they think are adapted to the Irish soil and climate, to send samples to Mr. Murphy and let him test them." I have no objection honestly to carry out this view, and have already received

a few selections of varieties, one being from Messrs. Carter—new varieties. But it is not merely new varieties we want; we wish to know of strong-growing robust kinds, tolerably free from blight, and of good quality, that will be fit for use from September to February. The Magnum Bonum is good after that time. Correspondents in other parts of Ireland might do the same.—W. J. MURPHY, *Clonmel*.

TUBEROUS BEGONIAS FOR BEDDING.

(Continued from page 70.)

THE position which the plants are to occupy during the summer is the next consideration. An open one is the best where the full benefit of the sun's rays can be had, still protected, so that east or south-westerly wind cannot injure them. The former interferes with their early growth, while the latter often causes injury to the plants in the autumn by breaking the branches and quite spoiling some plants. The preparation of the soil in the bed is the next consideration. If possible, this should be wholly new, and where a few plants only are used there is no reason why this cannot be done, as a little extra labour is amply repaid by the results which are attained. The mixture best suited is as follows—strong fibry loam chopped roughly two parts, one of leaf soil, one of the materials from a spent Mushroom bed, with a small quantity of finely ground bones and soot. Place this on to the depth of 1 foot. Below the soil should be well broken up 1 to 2 feet deep. Where the soil is heavy this admits of heavy rains passing quickly away, for although Begonias like plenty of moisture when actively growing, they are adverse to stagnant moisture. Under the prepared soil a layer of well-decayed farmyard manure or old hotbed materials may be placed. Into this the roots will penetrate and derive much benefit, but where a large number of plants have to be accommodated much more simple means have to be adopted. The soil should be broken up to a good depth, and if at all strong in character a dressing of horse manure and leaves will be an advantage, but where sandy soil predominates cow manure will be best. To both sorts of soil add some bones and soot, and with the heavy soil some leaf mould will much assist the plants at starting time.

The year-old plants may be placed 1 foot apart each way, except where they are small, then 10 inches will do. It is a mistake to overrowd them, as they grow weakly and cannot show their flowers to advantage when huddled together. They do not flower so freely, and they are more liable to injury by winds in the autumn owing to the soft growth. The soil in the boxes being well soaked previous to planting, good balls of soil will adhere to each, thus avoiding a check in transferring them to the beds. Plant deeply enough to cover the old soil about the plant. The seedlings may be placed closer together according to their size and habit of growth, as this can be determined by this time whether they be upright or drooping in character.

The time for planting must be determined by the locality. In the south of England the last week in May will be soon enough, while in more northern counties the middle of June will be preferable. No matter where, it is wise to take precautions to protect them from frost by covering the bed each night after planting for a time with some tiffany, which can be easily placed over at night and removed in the morning. Even if the weather be hot and dry this is beneficial as shade for a few days until the roots have started into the new soil. If the soil be dry at planting time give a good soaking with water afterwards to settle the soil firmly about the plants.

Some people will perhaps say by planting so wide apart a large space of bare soil is seen in the beds until the plants touch each other, and that will not be until the autumn. I cover the space between the plants with some dwarf-growing carpet plant, and for more reasons than this. The moisture is retained in the soil so much better, while the blooms are not splashed by the soil from the beds during heavy rains, and if suitable colours are used the beauty of the flowers is much enhanced by the groundwork. For instance, how much better a bright scarlet will appear above a setting of *Sedum glaucum*, and so on. Any extra time spent in arranging these carpet plants is occupied to much advantage. Whatever class of plant is used it should be planted at the time the Begonias are placed in. The following are all suitable—*Sedums glaucum* and *Lyodium*, *Herniaria glabra*, *Veronica repens*, *Antennaria tomentosa*, *Poa trivialis variegata*, red *Alternantheras*, or golden *Lysimachia*. *Sedum glaucum* and *Veronica repens* are two of the most effective with all shades of colour in the Begonia. When the plants are growing freely, should the weather be dry and the sun hot, a good soaking of liquid manure occasionally will be of great advantage. Apply this in the evening, and if any doubts occur that the foliage may be stained by the liquid, water the plants at once with clear water, which will cleanse the leaves. A small stake placed neatly to some of the tallest growing varieties will prevent their being broken by wind or heavy rains, as they

sometimes are when standing without any support. As soon as the plants commence growing freely, blooms will appear, after which they will never be without flowers. No matter what the weather be, nothing seems to affect them. They flower quite as well in wet as dry weather, and late in the autumn, when Pelargoniums are long past their best, continuing in flower until the end of October, provided a severe frost does not injure them.—E. MOLYNEUX.

GRAPES SHRIVELLING.

REFERRING to the correspondence in your Journal concerning the shrivelling of Grapes this season. My view of the shrivelling process has been that it is an effort of the plant to concentrate the juices of the Grape to the density necessary for its preservation and keeping, and that the deficiency of density in the contents of the berry may arise from varied causes. In the past season continued moisture acting on the roots and foliage during the rainy and damp weather in August and part of September caused the berries to be filled with a less concentrated solution of the salts, which are ultimately converted into cane sugar. Unless this solution were sufficiently concentrated fermentation would be set up and the berries decay rapidly. This is stopped by lessening the amount of water in the berries, probably by setting up a minor fermentation, which causes an elimination or absorption of part of the water, which is stopped as soon as the proper concentration is arrived at.

As regards a cure for such, no one can foresee a damp and moist season at the particular time the berries are about swelling to their full size. It can only be dealt with when it arrives by immediately covering the border with galvanised iron sheets, withholding almost all moisture inside the house, and raising and keeping constantly raised the temperature by your hot-water pipes, and giving plenty of air. This must be done early before the berries are saturated with excess of moisture. I can see other varied causes that will produce the same diluted state of the juices of the berries, from which, I think, the shrivelling proceeds. Those causes are as follows, any of which, or two or more jointly operating, may cause it—viz., deficiency of sunlight after the berries are fully swelled—ergo, insufficient formation of the salts from which the cane sugar is ultimately formed, likewise deficient foliage to properly transform the salts. A border deficient in the necessary salts, this latter often results in the development of only such fruit as the debilitated state of the plant can finish, the compensating law in Nature thus preventing the result. Any sudden check to the plant after the berries fully swelled. I shall not trouble you with other causes. I consider the means of cure, or rather prevention, must be as varied as the causes.—F. J.

CHRYSANTHEMUMS FOR EXHIBITION.

(Mr. H. Shoesmith's paper.—Continued from page 67.)

As soon as the bloom buds are set and swelling, the plants will require top-dressing, and for this I find nothing better than fibry loam, adding to half a bushel of the same a 5-inch potful of Clay's Fertiliser. I give an occasional watering with weak soot water till the buds "burst," and afterwards my plants receive no manure of any kind. Here let me express my belief that the principal cause of the flowers damping is overfeeding with stimulants, for whilst we hear on all sides this year growers complaining of "damp" I have lost but one bloom—a Val d'Andorre—which had caught the "drip." House the plants before the buds show colour, keep plenty of air on at all times, and use fire heat only after watering, or on damp sunless days; placing them so that the blooms may develop as near as possible to the glass. As they appear treat green fly, mildew, and earwigs as your deadliest foes. Many are the not unpleasant evening hours I have spent with a light catching the latter enemy, and giving them a squeeze between thumb and finger.

At the end of this short paper I have named a selection of varieties which are all good, and in passing would remark that it is very easy to grow too many varieties, especially of the Japanese. There is much difference in people's taste as to form and colour. My own favours those close yet graceful forms, as in Mdle. Lacroix, Belle Paule, and M. Astorg, rather than the more spreading Fair Maid of Guernsey, Meg Merrilies, and Baronne de Prailly; still, these latter sorts hold a high position as exhibition flowers. Madame Clemence Audiguier everybody likes, and hard indeed would he be to please who found fault with a good specimen of Boule d'Or; Marguerite Marrouch, one of the most effective; Jeanne Delaux, Val d'Andorre; the long-named one, Triomphe de la Rue des Châlets; Mons. Ardene; the fantastic Golden Dragon; Thunberg, Triomphe du Nord, and bronzy Japonaise; Criterion, and the delicately coloured Madame J. Laing, with the noble Comte de Germiny. These are flowers among the Japanese that memory calls to mind when the flowering season is over. That noble family of "Empresses," Princess of Wales, Mrs. Heale, Hero of Stoke Newington, Princess of Teck, John Salter, Prince Alfred, and Lord Wolseley. What would incurved stands be like without these? Improvement seems slow in the reflexed class, but still it can boast of the richest coloured Chrysanthemum in cultivation, Cullingfordi.

There is no royal road to success in Chrysanthemum growing, and

to get flowers worthy of the position of "first prize," one must give the plants constant, aye loving care; must study closely the peculiarities of individual varieties, for many of the best forms are capricious beauties; must think for himself. We have frequently heard persons speaking of some successful grower such remarks as—"He ought to be able to do it. See what splendid loam he can command!" or "If I had his houses and his help I could do it," and so on. Again, many growers who are not particularly successful with the flower imagine that their more favoured brethren have some patent medicine—I mean manure—and with a mysterious air keep the secret locked up in their own breasts. Nothing of the kind. The secret is, hard work. Do not be one of these demure ones, but go in with a determination to excel; persevere till all the details are mastered; and if you do not possess facilities for growing a thousand plants grow a hundred and be satisfied with the smaller classes, for just as good blooms are wanted—indeed, competition is often the most keen—to win the twelves and sixes as in the classes for forty-eight.

I shall be well pleased if in this short paper I have conveyed to some one among you a little of my own enthusiasm; for be assured that, although books and papers will greatly assist you in your work, if you follow them to the letter, without thinking for yourself, or being guided by seasons and circumstances, in my humble opinion the goal will not be reached. With this saving clause I should like to strongly recommend a work on our favourite, lately published by that skilful grower Mr. E. Molyneux, Bishop's Waltham, Hants; a book full of detail, and treating on all modes of cultivation, which for its cheapness as well as for the soundness of its teaching should be in the hands of every cultivator of the autumn queen.

As I am speaking to "brothers of the craft," I should like to mention, in concluding, an important element towards success—employers' sympathy. Should they be against exhibiting, grow your plants in a style that will meet their wishes. My own, I am pleased to add, is a gentleman well known for his love of flowers, and of whom it may well be said, "Age cannot wither, nor custom stale" his intense fondness for horticulture.

TWENTY-FOUR INCURVED.

Alfred Salter
Barbara
Baron Benst
Cherub
Emily Dale
Empress of India
Golden Empress
Hero of Stoke Newington
Jardin des Plantes
Jeanne d'Arc
John Salter
Lady Hardinge

Lady Carey
Lord Alcester
Lord Wolseley
Mr. Bunn
Mrs. Heale
Mrs. W. Shipman
Nil Desperandum
Prince Alfred
Princess of Teck
Princess of Wales
Queen of England
Refulgence

TWELVE REFLEXED.

Christine, Golden
Christine, Peach
Christine, Pink
Christine, White
Chevalier Damage
Cloth of Gold

Cullingfordi
Dr. Sharpe
Distinction
Mdle. M. Tezier
King of the Crimson
Phidias

THIRTY-SIX JAPANESE.

Album Plenum
Baronne de Prailly
Boule d'Or
Belle Paule
Comte de Germiny
Criterion
Duchess of Albany (Jackson)
Elaine
Fair Maid of Guernsey
Fernand Feral
Flamme de Punch
Golden Dragon
Grandiflorum
Japonaise
Jeanne Delaux
L'Adorable
La Triomphante
Maiden's Blush

Marguerite Marrouch
Meg Merrilies
Madame C. Audiguier
Madame de Sevin
Madame J. Laing
Mdle. Lacroix
Mons. Ardene
Mons. Astorg
Mons. Burnet
Mons. J. Laing
Mons. N. Davis
Mons. Tarin
Peter the Great
Soliel Levant
Thunberg
Triomphe de la Rue des
Triomphe du Nord [Châlets
Val d'Andorre

At the close of the reading of the above paper, which was performed by deputy, Mr. Shoesmith being unable to be present, a discussion took place among the members on several of the cultural points named therein. Mr. J. Pavey, in the course of a few able remarks, expressed his opinion that the increasing tendency to grow exceptionally large blooms led to the employment of costly manures and the frequent production of an undesirable coarseness in the shape and character of the flowers. He thought that societies did wrong in offering prizes to encourage this state of things; that a gardener who grew a dozen blooms of fair size and quality on one plant, really merited much greater distinction as a skilful cultivator than another who grew one or two large and coarse blooms by the same means; and finally, that the chief and true aim of horticultural

exhibitors should be to induce growers and exhibitors to fix their standard of excellence at quantity and quality, rather than quantity as distinguished by abnormal grossness. Other members, including Messrs. Reece, Jeffery, Howes, and Rhoden, took part in discussing the author's practice in the application of manure to the soil and after stimulants. Some thought that a little stable manure was indispensable for mixing with the potting soil, and expressed their surprise that the author's plants grew so strongly and produced such fine blooms as he had exhibited without manure or stimulants being applied until growth and buds were so far advanced. In the end, however, all became convinced of the wisdom of the author's practice in first building up a powerful vigorous structure by means of the wood and fibre-producing agencies of phosphates, and then when this is completed feeding liberally with nitrogenous manures for a time. Ultimately a hearty vote of thanks to author and reader was unanimously awarded by all present.



WE regret to have to announce the death of Mr. J. F. WEST, late of Lynmouth Lodge, Reigate, who has been for many years a Fellow and Auditor of the accounts of the Royal Horticultural Society. Up till the 27th of January, when Mr. West with his coadjutors signed the balance-sheet of the Society, he was in his usual state of health, and he died suddenly on the 30th ult. at the residence of his son-in-law at Northallerton, Yorkshire, aged sixty-four years.

— THE LIST OF SEEDS ISSUED BY M. MAXIME CORNU FROM THE JARDIN DES PLANTES, Paris, under the title of "Index seminum in hortis Musæi Parisiensis," is just to hand, containing the names of the species of which seeds were collected in 1886. Over 5000 names are given, the species being arranged in their natural orders and classes, commencing with the Cryptogamæ and concluding with the Gymnospermæ. All the large families of plants are well represented and the nomenclature is accurate.

— WE learn from the financial account of the SHEFFIELD FLORAL AND HORTICULTURAL SOCIETY that their affairs are in a prosperous condition, the result of the past season's proceedings being a balance of £38 14s. 4d. in the Society's favour.

— MR. JOHN BENNETT, who has been for several years the able gardener at Feldheim, Wimbledon, desires us to state that he has left there owing to the death of his employer and the consequent breaking up of the establishment.

— WE are requested to note that the annual WIRRAL ROSE SHOW will be held in Hamilton Square, Birkenhead, on Wednesday, 20th July, 1887.

— A SPECIAL meeting of the WAKEFIELD PAXTON SOCIETY was held last week to discuss the most desirable method of celebrating the Queen's jubilee. There was a large attendance of members, the majority of whom were in favour of forming a public park, and at a meeting of tradesmen in the same town a similar resolution was carried. In many other towns there seems to be a similar feeling in favour of establishing public parks and gardens in celebration of the year.

— A WELL KNOWN floral decorator and bouquetist, Mr. J. R. CHARD, formerly of Clapham, has removed to Stoke Newington, N., where he is now established in the Brunswick Nursery, High Street. During the years 1884, 5, and 6, Mr. Chard had an exceptionally fortunate career as an exhibitor of floral decorations, bouquets, button-holes, &c., having gained seventy first prizes, forty-two second prizes, twenty-two third prizes, eleven extra prizes, and our first-class certificates. Most frequenters of exhibitions are familiar with the tasteful style adopted by Mr. Chard and his wife, the simple elegance of their contributions having won them many prizes in competition with more elaborate and florid designs.

— A CORRESPONDENT writing about EARLY PEAS, advises that "If not already sown it should be done as soon as the weather permits.

William the First and Kentish Invicta, if true to name, can be depended upon for first crop. Years ago we used to sow the first crop of Peas and Broad Beans on or near November 5th, and have now and then gathered on the third week in May; but now we seldom gather until the third week in June unless the Peas are forwarded in some way. Early Kenilworth and Day's Early Sunrise are second earlies, with Dr. Maclean and Prince of Wales. These will carry on the season till the April sowing of the wrinkled Peas. All should be coated with red lead to prevent rats, mice, and birds taking them, and should be covered more deeply with soil than the later varieties."

— MESSRS. WOOD & SON, Wood Green, London, N., send us a copy of their "LITTLE BOOKE FOR YE GARDEN," which comprises forty-eight closely printed pages of matter mostly devoted to short chapters on gardening subjects, such as the following:—"Vines in Pots," "Open Air Tomatoes," "Potato Culture," "Mushroom Growing in the Open Air," "Chrysanthemums for Exhibition," "Budding Roses," "Miniature Fruit Trees," and "Orchid Culture." The articles appear to be practical and reliable, and amateurs may derive some useful instruction from their perusal.

— PRESENTATION TO MR. LOCK.—On the evening of Tuesday, January 25th, Mr. George Lock, gardener to B. W. Cleave, Esq., Crediton, well known as a most successful plant exhibitor, was the recipient of a handsome testimonial subscribed for by various admirers in the neighbourhood as well as from a distance. It consisted of a gold watch and chain, an illuminated address, and a handsome drawing-room clock for Mrs. Lock. The presentation was made by Mr. James Searle, who bore witness to the good work done by Mr. Lock in his own town as well as in the surrounding neighbourhood, and to his uniformly obliging and courteous manner. In the course of his remarks it transpired that Mr. Lock has, in eight years, won 499 prizes—359 firsts, 116 seconds, and twenty-four thirds, including twelve silver cups. Mr. Lock made a suitable reply, not inaptly mentioning that his success in a great measure was due to Mr. Cleave, "for if he did not find the coke he (Mr. Lock) could not do the stoking."

— "J. W." writes: "Until this season I have always had a certain amount of trouble with the COVERING USED ON COLD FRAMES, either from the wind blowing it off or from the snow and rain making it very wet. This season I ordered some tar sheets with the usual brass eyelet holes, and these are fastened down on the mats, &c., and they are always quite dry. The tar sheets are not at all heavy, and they can be folded in a small compass. They have answered remarkably well."

— MR. B. S. WILLIAMS, Upper Holloway, sends some flowers of CINERARIAS, large and varied in colours, selfs and tricolors, the latter having the centre ring of colour narrow or deep, the inner white circle pure, and the other tints rich. Evidently a carefully selected strain they being bold and showy.

— THE monthly meeting of the members of the LIVERPOOL HORTICULTURAL ASSOCIATION was held on Saturday night the 22nd inst., in the lecture room of the Free Public Library, William Brown Street, a very large number of members being present to hear the papers read by Mr. A. R. Cox, Elm Hall, Wavertree, on the "Cultivation of the Ixora," and Mr. Ranger, Aigburth Nursery, on the "Clematis." It is well known that Mr. Cox is a master in the cultivation of the Ixora, and it is indeed questionable if ever this class of stove plants were ever staged in such admirable condition as those brought before the public by this able exhibitor during the past few years. The plants staged by him at the Royal Horticultural Society's provincial show cannot easily be forgotten by those who had the pleasure of seeing them. The principal discussion on this paper took place on plunging *versus* growing the plants without, in which Messrs. Bardney, R. W. Ker, and others took part, but this matter was cut short to leave time for Mr. Ranger's paper, which also was an excellent one, as was expected from such an able cultivator. Time was limited for discussion, but several useful and interesting remarks were made by several members. The Vice-President of the Association, Mr. White, occupied the chair, and the usual vote of thanks brought the evening's proceedings to a close. The excellent paper by Mr. Cox has been forwarded to us for publication, and will appear in an early issue of this Journal.

— GARDENING APPOINTMENT.—Mr. Thomas Simpson, for the last five years foreman at Lambton Gardens, has been appointed head gardener to H. Bramwell, Esq., Crown East Court, Worcester.

— THE fifty-ninth annual meeting of the proprietors of the ROYAL BOTANICAL GARDENS, MANCHESTER, was held recently at the Town Hall, the Mayor (Mr. Alderman Curtis) presiding. It was stated that the debt had been somewhat increased owing to the expenditure of £2000 in the erection of a Palm house, but all agreed that the Council had acted wisely in this matter. There had also been a slight falling off in the receipts at the Exhibition owing to the bad weather. In the past twelve years about £8000 have been expended in the Gardens, and they are now in a most satisfactory condition. After some discussion with regard to tickets for the Jubilee Exhibition, votes of thanks were accorded to the retiring Council, and the officers were elected for the year.

— CHRYSANTHEMUM growers will be interested to know that amongst other Jubilee prizes Messrs. W. Wood & Son of Wood Green will offer at the National Chrysanthemum Society's principal Show a series of prizes—silver cup value 5 guineas, one of their Jubilee Memorial silver medals value 30s., and cash prizes—for the best specimen plant of a white Chrysanthemum. Any variety, any size pot, any shape, and any kind of stimulants are permitted, there being no restrictions whatever. This should incite a good contest, and bring up country growers to compete with the Central Society's usual exhibitors. It will also help to show what variety in whites is most esteemed.

— A GOOD LATE CHRYSANTHEMUM.—“J. H.” writes:—“Victoria Chrysanthemum is one of the very best that could be grown where a supply of white flowers is in request at this time of year. Being a strong grower of dwarf habit, about 3 feet high, with large dark green foliage and pure white flowers, it is especially well adapted to fill the stages after the majority of Chrysanthemums are over. I find it best not to disbud this variety, as it produces a lot of solid buds around the terminal like the one enclosed. They are very suitable for bouquets or crosses, wreaths and buttonholes. I also enclose a flower of a sport I have on one plant of Victoria, and if I am fortunate in fixing it I am sure the colour would be an acquisition for January and February.” Both the flowers are very pretty, the sport being of a rosy purple tinge, rather deeper at the margin, like Belle Paule.

— MR. ROBERT OWEN, Maidenhead, sends us specimen blooms of PRIMULA SINENSIS VARIETIES, all of great substance, diverse in colours, some very bright and rich, others of delicate tints, spotted or pure white. The strain is a very good one.

— MR. J. HORSEFIELD, The Gardens, Heytesbury, Wilts, writes:—“I send the enclosed berries of MRS. PEARSON GRAPE as a proof of its keeping qualities. The bunch from which they were taken has been cut and bottled for five months, and as you will observe at the present time the footstalks are perfectly green, berries plump and of good flavour. I regard it as superior to the Muscat of Alexandria at this season, and decidedly the best late-keeping white Grape in cultivation.” [The paper box was smashed and the Grapes, too; and all we can say is the footstalks are quite green and the skins smooth, indicating that the berries were firm when placed in the box.]

— A PAPER entitled ORCHID LORE by Mr. Lewis Castle was read at the monthly meeting of the Lee, Lewisham, and Blackheath Horticultural Society on Friday, January 28th, when there was a good attendance of members. It was followed by a long and interesting discussion, a unanimous vote of thanks being accorded for the contribution.

— THE annual general meeting of the LIVERPOOL HORTICULTURAL ASSOCIATION was held in the large lecture room of the Free Public Library, William Brown Street, on Saturday evening, the 29th inst., eighty members being present. The report and balance-sheet showed that the Society was still in a prosperous condition. The membership has increased, as no less than 1280 honorary and ordinary members contribute to the funds of the Association. The amount subscribed amounts to £591 4s. The gain on the year's working is £41 15s. 8d., which, added to the balance in the bank, amounts to the sum of £549 16s. 4d., a very handsome sum with which to commence operations for another year. The special prizes offered at the three exhibitions to be held during the present year are more numerous than has ever been the case before. Fletcher Rogers, Esq., Woodend, Grassendale, was again elected Hon. Treasurer, and Mr. Blackmore Sub-Treasurer in the place of Mr. William Marshall, who had held the office most

creditably for four years, but had been compelled to resign through failing health. Messrs. J. Peers, Aigburth, and J. Kelly were again elected Auditors, and Mr. Edward Bridge Secretary, whose exertions cannot be too highly commended. It was proposed by Mr. R. W. Ker that the sum of £5 as a donation be granted annually to the Gardeners' Royal Benevolent Institution, but it was considered better to make the grant from time to time at the annual meeting according to the prosperity of the Association. This was adopted and the Committee empowered to pay the money, the Chairman and Committee to have the power of voting on behalf of pensioners. It was suggested by Mr. F. Mee that a like sum be paid to Mr. Marshall, the late Sub-Treasurer, the Committee being finally empowered to forward £10. It was suggested by Mr. Bardney for consideration that a gardeners' library be started in connection with the Association. Votes of thanks to the Committee, officers of the Association, and gentlemen who had promised special prizes, and to the Vice-President, Mr. White, for presiding, brought the meeting to a close.



CALANTHES FAILING.

“R. M.” does not seem to agree with my views of insufficient air among the roots. I had forgotten to mention that the pseudo-bulbs in question were grown in pots on a slate slab about a yard from the glass, and after watering and syringing twice daily I have seen the water standing between the slate slab and the pot. It is the practice of some Orchid growers to raise the pots from slabs or stagings, so that the water can run through and get clear away, also as a guard against pests; but in this case it was the reverse, and I can partly agree with “R. M.” that they receive more moisture through the source I have mentioned in continuing to wet the slab, so that the two evils together, no doubt, wrought the failure. Not, as Mr. D. Phillips thinks it was due to excessive dryness at the root during development, but having to look after them myself I am certain it was not so.—F. DEBNAM, *Betteshanger*.

CŒLOGYNE CRISTATA.

AMONGST the really useful Orchids this Cœlogyne deserves a prominent place, a fact with which most growers are now well acquainted. It amply repays for all the attention it requires, and its demands are not very extensive. A beautiful example of what can be accomplished with Cœlogyne cristata by good cultivation is to be seen in the garden of Mrs. Evans, Witley, Surrey, where a plant has now thirty spikes bearing four or five flowers each. The plant is in excellent health.—A. B.

CYPRIPEDIUM BOISSIERIANUM.

In the choice collection of Orchids at Studley House, Hammersmith, Mr. J. F. Tautz makes a specialty of the genus Cypripedium, and has collected a large number of the most valuable hybrids, species, and varieties that can be obtained. Several distinguished amateurs have paid considerable attention to these distinct Orchids, both in England, on the Continent, and in America, some of the handsome Chelsea hybrids, like C. Morganæ, ranking amongst the most valuable Orchids of the present time. When paying a visit recently to this interesting collection a plant of a very distinct Cypripedium bearing the name of Boissierianum was in flower, a sketch of which is given in fig. 14. It is related to the South American Sclenipediums, and is remarkable for the very long twisted and undulated petals; and though the prevailing colour is a light green, these give the flower a curious and most striking appearance. There is a slight veining with rose of crimson, and the narrow light margin to the petals and dorsal sepal is distinctly marked. Like most of the section it is easily grown, of vigorous habit, with long graceful narrow arching leaves. At Studley House Mr. Cowley has it in the warm house, and like the other plants under his charge it is very healthy.

CYPRIPEDIUM SPICERANUM.

I STRONGLY advise all who are anxious to possess easily grown and beautiful flowering Orchids to secure this Lady's Slipper. It is one of the easiest of all Orchids to grow, and in my opinion one of the prettiest of the Cypripediums. Three years ago, while in Messrs. Veitch's nursery at Chelsea, I secured a little plant of it, which had eight or ten leaves, and this plant is now 18 inches in diameter, well furnished with healthy foliage, and has lately produced some dozens of blooms. In fact, it was in bloom in October, and the blossoms are still fresh. Our house accommodation for Orchids is not the best, and this is why I infer it is easily cultivated. Like all the Cypripediums, it requires abundance of drainage, and the soil we grow it in is composed of fibrous turf, peat, and oyster shells, which are gathered on the shore not far from here and broken into small pieces. We find these better than sand for keeping the soil open, and for drainage we prefer them to broken pots.

While the *Cypripedium* in question is making its growth in April and May it delights in rather a strong heat and abundance of water. From 65° to 75° is very suitable for it, and as these temperatures generally occur in Cucumber and Melon pits or vineries at this season it is an easy matter to place it in growing quarters, while later on in the summer it will grow anywhere under glass, and it does not require more heat until the end of September, when the flower buds appear, and require a heat of 65° or so to bring them out freely. When in flower it should be kept in a temperature of 55° or thereabouts, and the atmosphere should be rather dry, as the flowers remain much longer perfect in a dry atmosphere than where there is much damp. It is admirably adapted for placing in rooms or on staircases, and in such positions it will retain all its attractions for many weeks. After flowering it should be kept in a cool house and almost dry at the root, that it may have a thorough rest, and when placed in heat again it will develop crowns and leaves in a most satisfactory manner. We have found April the best time to repot it.—J. MUIR.

GROS COLMAN GRAPES.

I AM sorry to trouble you again upon this subject, yet I crave your indulgence this time. On page 64 of Journal of January 27th my worthy opponent began his brief note with the following noble senti-

ment think that the position I have taken up in this discussion is actuated by any motives of disparagement to the fruit he so ably grows. Far from it. Though I had not the honour of seeing Mr. Goodaere's Gros Colmans last season, what I have heard of them indicates they must have been very fine, probably as good as any ever grown in this or any other country; but at the same time I think they could have been so without approaching the weight reported. I should have thought that the honour attached to growing and exhibiting such fruit would be sufficient in itself to satisfy the most ambitious amongst us without attempting to "cap" the achievement with so weighty and staggering an assertion that sixty-eight berries weighed 7 lbs.

I feel not a little flattered at the evident anxiety of Mr. Goodaere to know my name, especially when such anxiety is associated with so charitable an object as the relief of the unemployed. I compliment him on the interest he takes in so worthy an object, and beg to inform him that he may depend, not only upon my support and sympathy, but the desired information will be forthcoming when I know a little more of his "rules of procedure," and of course the present controversy is settled. In the meantime, however, I cannot see how it could assist him in his present difficulty to satisfy his curiosity on this point, but I may be wrong. If I thought for a moment that the information would in any way assist him to give a straight answer to a straight question I would not only gladly give him my name and address, but full partien-



Fig. 14.—CYPRIPEDIUM BOISSIERIANUM.

ment:—"Discussions are beneficial so long as they remain reasonable and do not drift away from the original subject." I endorse every word of this sentence, but "why not practise what you preach?" If Mr. Goodaere had done this he would have saved trouble, and certainly have given satisfaction to more persons than myself. I always thought that "beating about the bush" would be a tiresome and laborious undertaking, and the admission of my friend has confirmed my opinion.

What is the original subject and point in dispute of discussion? I will state it again for the information of my opponent. A bunch of Gros Colman Grapes was reported 7 lbs. in weight and having only sixty-eight berries. I questioned the accuracy of this report, and asked Mr. Goodaere to state if it was correct. He has since replied to my inquiries, carefully avoiding each time the point questioned for reasons best known to himself. I now give him another opportunity, and for the third time ask him to state if 7 lbs. was the weight of his sixty-eight-berried bunch or not. This is the root of the whole matter. Surely it does not require an elaborate exposition of the sizes of different varieties of Grapes to answer so simple a question; though from Mr. Goodaere's latest contribution to the subject one would think it did, or that it was the size of the berries that was disputed and not their weight, upon which, by-the-by, he had nothing to say. What a pity he did not weigh them as accurately as he measured them.

I am asked to state where finer Gros Colmans than Mr. Goodaere's are to be found. I never said I had seen finer. I said I had seen bunches with berries as large, and if Mr. Goodaere turns to the first contribution I sent to this discussion he will get all the information I can give him on that point. I trust my worthy opponent does not for a

moment think that the position I have taken up in this discussion is actuated by any motives of disparagement to the fruit he so ably grows. Far from it. Though I had not the honour of seeing Mr. Goodaere's Gros Colmans last season, what I have heard of them indicates they must have been very fine, probably as good as any ever grown in this or any other country; but at the same time I think they could have been so without approaching the weight reported. I should have thought that the honour attached to growing and exhibiting such fruit would be sufficient in itself to satisfy the most ambitious amongst us without attempting to "cap" the achievement with so weighty and staggering an assertion that sixty-eight berries weighed 7 lbs.

I now take leave of the subject, and leave Mr. Goodaere and his wonderful bunch in the hands of your readers. With every good wish for the success and prosperity of my opponent, and may he long continue one of our foremost Grape-growers, and may the year we have just entered upon prove more prosperous to him as an exhibitor than the one we have just left behind. These are still the feelings and the wish of—D. B.

HAVING cut several bunches of Gros Colman the first week in December and weighed them, I tried a few bunches again to-day, with the result that in three cases out of five I find no loss. Then, again, bunches cut later on account of foliage being on, show the same result. I contend that unless the berries shrivel their weight is as well in March as December. When decayed berries occur this is a loss, but Grapes in good condition do not lose by keeping. Why should they, I should like to know? A very large grower once tried to persuade me they lost considerably, but I found this loss was due to bad berries, and he eventually admitted it was so. Sixty-eight berries 7 lbs., weight of single berry 1 eleven-seventeenths ounce. My berry at $1\frac{1}{4}$ diameter $3\frac{3}{4}$ in circumference weighs half an ounce. This weight, compared with a berry $1\frac{1}{2}$ diameter 5 three-sixteenths circumference, would make the large berry 1.37 ounce, or rather more than 1 one-third ounce. Now, to make 7 lbs. I must have eighty-four berries at 1 one-third ounce; ten berries at 1 one-third ounce would

weigh 13 one-third ounces. I found three good shaped berries to-day to weigh half an ounce each, $1\frac{1}{4}$ in diameter, $3\frac{3}{4}$ in circumference.—STEPHEN CASTLE, *West Lynn*.

CHRYSANTHEMUM RALPH BROCKLEBANK.

A FEW weeks ago I paid a visit to Childwell Hall, where the beautiful yellow sport from *Meg Merrilies* originated last year. The plant had been preserved, and was bearing numerous flowers of the parent and its sport, the latter all originating from breaks on the stem which last year showed one yellow flower. Mr. Winkworth tells me that every cutting taken from that stem produced yellow flowers, and that every cutting taken from other parts of the plant produced white ones. Fortunately there were three tiny breaks between the flower and the junction with main stem or the variety would have been lost, as none of the plants obtained from cuttings between that junction were of the sport; all shoots except this were removed. I believe Mr. Winkworth has had eight first-class certificates for this variety, which he has named after his employer Mr. Ralph Brocklebank. With your remarks in the report of the Kingston Show, "that it will make its mark in the future," I fully agree, and Mr. Winkworth is to be congratulated on having fixed such a grand variety. I may also mention in passing that *Chrysanthemums* are particularly well grown at Childwall Hall, and the general condition of the garden reflects great credit on the gardener and those who assist him.—THOS. HITCHMAN.

EAST LOTHIAN STOCKS.

THESE do very well sown at this time—the beginning of February—though some growers sow them in autumn and have plants which begin to flower earlier than do those sown now. However, seeds sown at this time produce plants which, if properly managed, begin to flower in July, and continue to yield their delightfully fragrant trusses until stopped by bad weather. It may be noted that these Stocks sometimes assume a bushy perennial habit, and in East Lothian, near the coast, I have seen them of large dimensions in cottage gardens. In gentlemen's gardens where they are cultivated in rich soil, they are more susceptible to frost and damp in winter, and do not, as a rule, live over the first year. In the south of England, however, I should imagine they would, in dry positions, live for years.

There are now several varieties in cultivation, and as a matter of course there is also much difference in the quality of the strains, some being of taller growth than others, not so branching, and colours not so pure or rich. The white, purple, and crimson are perhaps the best for ordinary purposes, the last-named having rosy crimson flowers, and of good dwarf habit. The variety known as "scarlet" is of a washed-out shade of rose, and is really not now worth growing. The white wall-leaved is also very good, the leafage being distinct and slightly glaucous in hue.

The seedlings are very easy to raise. We employ ordinary propagating boxes for the purpose, using as soil a light open compost, merely covering the seeds. A mean temperature of 55° suits them very well for starting the seeds, a covering of paper, if the surface is exposed to sunshine, serving to prevent the soil drying. If water is required, much the best plan of giving it is to partly immerse each box in a tank, taking care in doing so that the surface is not wetted, the seedlings being exceedingly liable to damp off at the surface of the soil if much water is given, and especially if the structure in which they are growing be kept moist and close. I have found it best to transfer the seedlings to a cool well aired structure as soon as the seed leaves are developed. This helps to render them much less liable to damp. Another means of avoiding losses from this cause is to prick off the seedlings into other boxes, the check received in the process rendering the little plants less susceptible to the bad effects of moisture. My own method of treatment at this stage is to remove the seedlings in their boxes to cold brick frames, where they are kept close, and in the course of a week or ten days after removal the seedlings are pricked out into a bed of soil laid in the bottom of the frame. For a while—longer or shorter in time according to the state of the weather—the sashes are kept close, but in fine warm weather they receive plenty of air.

We transplant into flowering quarters in April, and as a rule, find the plants benefited by planting thus early. These stocks have a bad habit of making tap roots, and the longer these are allowed to grow the more vigorous is the top growth, and the greater the check to the plant when removal takes place. By transplanting early, to a very extent this check is removed, and by covering the plants with flower pots, one inserted over each, the harmful effects of frosts and hot sunshine are averted. In some years the damage effected by slugs is very great. The quickest and most effectual cure is to handpick the plants for a few evenings. For hot and dry positions East Lothian Stocks are very good. Their growth is of course somewhat stunted, but the plants flower exceedingly well

and continuously, and are less liable to damage from early winter or late autumn frosts. However, it is necessary to plant in good ground in order to have really fine plants, which produce long spikes of their highly scented flowers. In cases where only double flowers are wanted, the young plants should be set out about 9 inches apart, in order that the single varieties may be eliminated in time to allow the double ones to fill up. For my own part I do not object to the single flowers, as they are very pretty, and withal useful, so that we set out at about 18 inches, plant from plant, and leave them to flower.

East Lothian Stocks are very serviceable for pot culture, and are occasionally lifted from the ground in autumn and potted for flowering in spring; but as a rule, these lift very badly, and much the best plan is to grow in pots all through. The main particulars to bear in mind are these. Employ rich open soil. Do not pot too firmly, and in repotting save all the roots. Give liberal shifts when repotting, and in the matter of water see that there is no stint or irregularity. Some plants grow in a way with an occasional drying. These Stocks resent the treatment so much, that unless the watering be regular there is no use trying to grow them.—B.

ROYAL METEOROLOGICAL SOCIETY.

At the last monthly meeting of this Society the following papers were read:—

(1) "On the Identity of Cloud Forms all over the World; and on the General Principles by which their Indications must be Read," by the Hon. R. Abercrombie, F.R.Met.Soc. The author illustrated the fact of the identity of cloud forms by exhibiting thirty-seven photographs of different kinds of clouds which he had taken in various longitudes, and in latitudes ranging from 72° N. to 55° S., including some actually on the Equator. Cumulus was shown to be the commonest cloud in the tropics, cumulo-stratus and cirro-stratus in the temperate zone, and stratus and fog in the Arctic regions. The author considers that ninety per cent. of the skies all over the world might be described by the seven well-known types of cloud:—cumulus, stratus, cirrus, cirro-stratus, cirro-cumulus, cumulo-stratus, and nimbus, if by cirro-cumulus fleecy-looking clouds are denoted. Although the forms are alike the prognostic value of the same shape of cloud is not identical everywhere, for while woolly clouds indicate fine weather in England they denote rain in Italy. The author showed that the form alone of clouds is equivocal, and that the indications of coming weather must be drawn not only from the form but also from the surroundings of a cloud, just as the meaning of many words can only be judged by the context. This paper was rendered most interesting by the photographs being thrown on the screen by Mr. B. C. Wainwright, F.R.Met.Soc., from a limelight lantern.

(2) "On the Cloud to which the name 'Roll-Cumulus' has been Applied," by the Hon. R. Abercrombie, F.R.Met.Soc. The author thinks that this cloud should be reported as "stratus" or "cumulo-stratus," according as the component masses partake more or less of the character of one or other of these clouds.

After the reading of these papers the annual general meeting was held, when the report of the Council was read by Dr. Tripe, which showed the Society to be in a satisfactory condition. The number of Fellows was 524. The President, Mr. W. Ellis, in his address drew attention to the remarks made by Mr. Hawksley at the meeting of the Royal Meteorological Society on June 16th last, in which, after acknowledging the indebtedness of engineers to meteorologists for the information collected by them concerning floods and rainfall, without which, as he said, it would not be possible for engineers to carry on their work efficiently, proceeded to urge on meteorologists the need of more investigation into the causes of the various phenomena connected with their science. The President suggested that this is just what meteorologists were always endeavouring to do, pointing out how great an amount of labour had already been thus expended, if not always wisely, at any rate with every desire to trace out connections and causes, any want of success being due rather to the difficulties of meteorological inquiry than to any other cause. Referring, then, to the connection of the physical sciences, and especially those of astronomy, terrestrial magnetism, and meteorology, he drew attention to various contrasts and relations existing between them, mentioning how in astronomy strict mathematical processes may be employed, whilst in meteorology tentative methods have to a great extent to be relied on; a state of development through which astronomy itself had in earlier ages also to pass, giving hope that in the confessedly difficult subject of meteorology we may in time pass from present systems to others more logical. There has already been progress; the preparation of a daily synoptic weather chart made practicable by the aid of the electric telegraph, would have been impossible not so very many years ago. Again, in astronomy the power of assimilating observations, as it were, is mostly in advance of the observational power, rendering ever greater instrumental means desirable. Not so in meteorology, for the purposes of which instruments can be constructed with accuracy beyond the power of adequately employing them, of which the difficulty of ascertaining the true temperature of the air is an illustration. This, indeed, troubles also the astronomer, the element of air temperature being one that enters into the calculation of astronomical refraction, besides which he has in various other ways to reckon with temperature effects. After referring to some popular notions on weather changes so related to the sun and moon, as well as to more systematic endeavours made to discover relations, in general insignificant, between position and periods of the moon and different meteorological elements, the President remarked that the modern meteorologist had happily found a wider sphere of work, for troubling himself less about cycles and periods he has seen the necessity of studying, by the aid of synoptic charts, the complex and broad phenomena of the atmosphere in all their varied relations. Passing on to consider some relations between meteorology and terrestrial magnetism, he men-

tioned some analogies existing between the meteorological element of temperature and the motion of the magnetic needle as regards their diurnal and yearly variations. Proceeding then to discuss to some extent the relation between solar spots, terrestrial magnetism, and meteorology, pointing out that whilst in certain broad features the relation with magnetism was very striking, that with meteorology, so far as we are able to interpret the results obtained, is comparatively uncertain. Some allusion was made also to earth currents as related to magnetic phenomena. Before concluding, the President, viewing the present outlook as regards meteorology, spoke of the new and higher meteorology that in spite of the difficulties of the subject, is now springing up, and referring to the various international congresses as having promoted uniformity of action and division of labour, said that meteorology now, perhaps more than ever, stood in need of combined action among its workers; and alluding to the idea of federation, of which of late so much had been heard, suggested that a permanent federation of the meteorologists of different countries might regulate meteorological action and inquiry throughout the world, and so promote the better elucidation of meteorological laws, whilst also accumulating materials for the future discussion, not only of the meteorology of the earth as a whole, but also of any periodical or secular changes, however produced, that might be proceeding thereon.

The following were elected the officers and council for the ensuing year:—

President: William Ellis, F.R.A.S. Vice-Presidents: George Chatterton, M.A., M.Inst.C.E.; Charles Harding; Cuthbert Edgar Peek, M.A., F.R.A.S., F.R.G.S.; George Mathews Whipple, B.Sc., F.R.A.S. Treasurer: Henry Perigal, F.R.A.S., F.R.M.S. Trustees: Hon. Francis Albert Rollo Russell, M.A.; Stephen William Silver, F.R.G.S. Secretaries: George James Symons, F.R.S.; John William Tripe, M.D., M.R.C.P.Ed. Foreign Secretary: Robert Henry Scott, M.A., F.R.S., F.G.S. Council: Hon. Ralph Abercromby; Edmund Douglas Archibald, M.A.; Francis Campbell Bayard, LL.M.; William Morris Beaufort, F.R.A.S., F.R.G.S.; Arthur Brewin; Frederic William Cory, M.R.C.S.; Henry Storks Eaton, M.A.; Richard Inwards, F.R.A.S.; Baldwin Latham, M.Inst.C.E., F.G.S.; William Marcet, M.D., F.R.S., F.C.S.; Edward Mawley, F.R.H.S.; Charles Theodore Williams, M.A., M.D., F.R.C.P.

NEW PLANTS OF 1886.

(Continued from page 74.)

Inf., Inflorescence.—*L.*, Leaves.—*Fl.*, Flowers.—*Fr.*, Fruit.—*H.*, Hardy.—*H.H.*, Half-hardy.—*G.*, Greenhouse.—*S.*, Stove.—*Per.*, Perennial.—*Shr.*, Shrub.—*In.*, Inches.—*Lin.*, Line = One-twelfth of an inch.—*Fl.*, Foot or Feet.—*Diam.*, Diameter.—*Pet.*, Petals.—*Sep.*, Sepals.

N.B.—Unless specified, all Orchids may be considered to be stove epiphytes.

CATTLEYA BOWRINGIANA. (*Veitch Cat.*, p. 9 and 3, with fig.) Orchideæ. A charming autumn-flowering species, allied to *C. Skinneri*. It bears a corymbose raceme of 5 to 10 fl., about 2½ in. in diam., of a rich rosy purple, the front of the lip is deep purple, with a transverse maroon band, behind which the tube is whitish. Central America.

CATTLEYA CROCAT. (*G. C.* xxvi., p. 360.) Something in the way of *C. Eldorado*, with large white fl., having a 4-lobed lip, with a deep orange mid-line, expanding on the disk into a large blotch, with teeth in front.

CATTLEYA GUTTATA, var. *IMMACULATA.* (*G. C.* xxvi., p. 326.) A fine and distinct variety, with the sep. and pet. of a mauve-brown colour without spots. The lip is white, with the front lobe purple.

CATTLEYA GUTTATA, var. *LEOPARDINA.* (*L.* pl. 19.) A fine variety, with elongate bulbs, and large racemes of numerous handsome fl., the sep. and pet. are thickly spotted with dark brown, the side lobes of the lip are white, and the broad bi-lobed front lobe is rich purple-red.

CATTLEYA HARDYANA. (*G. C.* xxiv., p. 206; *W. O. A.* pl. 231.) A magnificent plant, with fl. measuring 6-8 in. in expanse. Sep. and pet. of a rich rosy mauve, the sep. lanceolate, the pet. elliptic and wavy. Lip very large, deeply bilobed and frilled, deep crimson-magenta, beautifully veined on the disk with yellow and with a large yellow spot on each side. Columbia.

CATTLEYA LABIATA, var. *SCHREDERIANA.* (*G. C.* xxv., p. 554.) A very fine variety, with large white fl., the lip being marked with broken mauve-purple lines and having an orange median line.

CATTLEYA LAWRENCEANA, var. *CONCOLOR.* (*G. C.* xxv., p. 585.) A variety having the whole fl. of a light purple colour.

CATTLEYA LUCIENIANA. (*G. C.* xxiv., p. 456; *Gfl.* 1886, p. 156.) A beautiful plant, with l. and bulbs of *C. Harrisoniana*, and a fl. like that of *C. Isabella*, but darker and richer. Sep. and pet. brown, with a wash of purple. Lip trifid rich purple, with pale yellow side lobes, and red veins and keels.

CATTLEYA MENDELI, var. *BELLA.* (*W. O. A.*, pl. 225.) This handsome form is the same as *C. labiata*, var. *bella*, noted in the *Y. B.* for 1883, p. 87.

CATTLEYA PERCIVALIANA, var. *REICHENBACHI.* (*L.* pl. 39.) This is a handsome form of *C. labiata*, with rich mauve-purple sep. and pet., and the front lobe of the lip rich deep purple, the purple running out into a point behind, on each side of which the lip is rich yellow with red venation.

CATTLEYA PORPHYROPHLEBIA. (*G. C.* xxiv., p. 552; *Gfl.* 1886, p. 156.) A fine hybrid between *C. intermedia* and *C. superba*, with fl. 4 in. in expanse. Sep. narrow oblong, pet. falcate-elliptic, an in. broad, all of an uniform and very delicate pale mauve, as well as the base of the lip, the front lobe of the lip is darker, with deep mauve veins, which are continued up the middle of the disk to the base, the front part of the side lobes are very pale yellowish with light mauve at the wavy edge. Garden hybrid.

CATTLEYA SCITA. (*G. C.* xxiv., p. 489; *Gfl.* 1886, p. 156.) A fine form allied to *C. guttata*. The sep. and broad waxy pet. are pale ochre, with light purple blotches and shades. Lip purple, with pale sulphur side lobes, having purple edges, and a white disk with purple lines.

CATTLEYA SPECIOSISSIMA, var. *MALOUANA.* (*L.* pl. 47.) A very fine form, with large fl. of a rich rose-purple, the lip veined with darker, and whitish around the mouth of the tube.

CATTLEYA TRIANE, var. *ANNE.* (*L.* pl. 31.) A handsome form, with light rosy-purple sep. and pet., and a dark purple lip, having the inside of the tube whitish, with a two-lobed yellow blotch in front.

CATTLEYA TRIANE, var. *FORMOSA.* (*G. C.* xxv., p. 266.) A form having a larger amount of yellow on the lip than usual.

CATTLEYA TRIANE, var. *MASSANGIANA.* (*W. O. A.*, pl. 242.) This is the same as *C. labiata*, var. *Massangeana*, noted in the *Y. B.* for 1884, p. 87.

CATTLEYA TRIANE, var. *RUSSELLIANA.* (*W. O. A.*, pl. 219; *G. C.* xxv., p. 266.) A very handsome form, with delicate pale mauve sep. and pet., and the front lobe of the large lip of a deep magenta-purple, with a bi-lobed yellow blotch at its base. Columbia.

CATTLEYA TRIANE, var. *SCHREDERIANA.* (*G. C.* xxv., p. 266.) A fine form, with unusually long pet., and a green blotch at the base of the column.

CATTLEYA TRIANE, var. *VANNERIANA.* (*G. C.* xxv., p. 331.) A fine variety, with a broad orange central stripe on the lateral sep. Lip with a fine purple apex, orange disk, and light rose side lobes.

CHAMÆCYPARIS LAWSONIANA, var. *ROSENTHALII.* (*Gfl.* 1886, p. 86.) Coniferae. *H.* A variety differing from the type in its pyramidal growth, and the branchlets do not droop. Garden variety.

CHAMÉDORA ARENBERGIANA. (*B. M.*, t. 638.) Palmæ. *S.* A small graceful Palm, with a distantly ringed stem, 5 to 6 ft. high. L. 6 to 7 ft. long, with a slender petiole, and 10-15 pair of lanceolate acuminate leaflets 12 to 18 in. long. Spathes forming a sheathing tube, concealing the peduncle of the spadix, which is umbellately branched in the male, simple in the female, densely covered with yellowish fl. Guatemala.

CHEVALLIERA CROCOPHYLLA. (*B. H.* 1885, p. 81.) Bromeliaceæ. *S.* A fine large species, with clear green l., spotted and marbled with dark green, and a robust fl. stem 3 ft. or more high, bearing a compact spherical head of small green fl., with spiny edged bracts. During the flowering the outer l. of the plant assume a beautiful rose colour, whilst the inner l. retain their ordinary colour, making the plant a very ornamental one. Brazil.

CHIONODOXA SARDENSIS. (*Gfl.* 1885, p. 277.) Liliaceæ. *H.* bulb. A beautiful spring-flowering plant, resembling *C. Luciliae*, but differing by its smaller, flatter, and darker blue fl., with a white eye.

CHONDRORHYNCHA LENDYANA. (*G. C.* xxvi., p. 103.) Orchideæ. A handsome Orchid, with light whitish-yellow fl., the lip being darker. Lateral sep. reverse and retrorse; pet. very large; lip large, elliptical, with a central bidentate callus.

CIRRHOPELALUM PULCHRUM. (*Ill. H.*, t. 608.) Orchideæ. An elegant and large-flowered species, with short, distant, 4-angled bulbs; stalked, oblong, obtus., emarginate l.; and scapes 4 to 5 in. long, bearing about 7 fl. in an umbel. Dorsal sep. roundish, abruptly running out into a hair-like point ½ in. long, purplish, dotted with darker; lateral sep. connate into a convex oblong blade 1½ in. long, yellow, mottled with purple. Halmahera.

CLEODENDRON MINAHASSE. (*Bull. Cat.*, p. 7.) Verbenaceæ. *S.* A fine ornamental shr., with square stems, opposite obovate serrate l., and broad terminal cymose panicles of yellowish-white fl. 4 in. long, with exserted purple anthers. In fruit it is very ornamental, as the calyx grows out so as to resemble a fl. 3 in. across, of a red colour, with a round blue berry in the centre. Celebes.

COCCULUS CAROLINIANUS. (*Gfl.* 1886, p. 404.) Menispermaceæ. *H.* ornamental climber. L. very variable, roundish, broadly ovate, or with 2-4 short, obtuse basal lobes, and a longer middle lobe, obtuse, rarely acute. Fl. in raceme-like axillary panicles, white, the female fl. succeeded by bright scarlet berries. As the plant is dioecious, both sexes are necessary to obtain fr. N. America.

CELOGYNE CRISTATA, var. *MAXIMA.* (*G. C.* xxv., p. 398; *R.*, p. 13, t. 6.) Orchideæ. A large flower d variety, with unusually broad sep. and pet., and shallow side lobes to the lip.

CELOGYNE FOESTERMANNI. (*G. C.* xxvi., p. 262.) A grand and beautiful species, with a stout rhizome; thick, curved, ribbed, cylindric, two-leaved bulbs; and peduncles 2 ft. long, bearing 20 or more white fl., marked with yellowish-brown on the lip. Sep. and pet. oblong acute. Lip trifid, side lobes half rounded, mid-lobe elliptic acute, with plicate keels. Sunda Isles.

CELOGYNE STELLARIS. (*G. C.* xxv., p. 8.) Something in the way of *C. testacea*, with tetragonous bulbs, oblong acute l., and green fl., with a white lip, having brown lines on the side lobes. Borneo.

COLENSOA PHYSALOIDES. (*B. M.*, t. 6864.) Lobeliaceæ. *G.* or *H.H.* An ornamental bushy herb, 2 to 3 ft. high. L. petiolate elliptic-ovate, acute, serrate, 4 to 6 in. long. Racemes lax, few-flowered. Fl. 1½ in. long, very pale bluish, 2-lipped, the upper lip divided into two linear lobes. Fr. inflated, berry-like, violet, crowned by the linear green calyx teeth. New Zealand.

COLOCASIA DEVANSAYANA. (*Ill. H.*, pl. 601.) Araceæ. *S.* Aroid, with purple-brown petioles, and erect cordate-sagittate acute l. of a bright dark green colour, paler beneath, with purple-brown midrib, and primary veins. Papua.

CORYNOCARPUS LEVIGATUS, var. *AUREO-MARGINATUS.* (*Williams' Cat.*, p. 241, and p. 19, with fig.) Anacardiaceæ. *G.* shr. A very ornamental variety, of compact habit, having the large l. broadly bordered with golden yellow. New Zealand.

COTONEASTER FONTANESII. (*Bull. Cat.*, p. 7.) Rosaceæ. *N.* shr. of compact habit, with pubescent branches, orbicular dark green l., and small corymbs of white fl., succeeded by large round bright red berries.

CRASSULA SCHMIDTI. (*Gfl.*, t. 1225.) Crassulaceæ. This is a synonym of the plant described as *C. impressa*, see *Y. B.*, 1885. It is a dwarf tufted plant, with linear-lanceolate ciliate l., impressed-dotted above; and cymes of pretty deep pink fl. S. Africa.—N. E. Brown.

CRATEGUS OXYACANTHA, var. *POLII TRICOLORIBUS.* (*R. H.* 1886, p. 398.) Rosaceæ. *H.* An ornamental variety, having the foliage variegated with different shades of dark red, carmine, and rose. Garden variety.

CRATEGUS OXYACANTHA, var. *SEMPERFLORENS.* (*Gfl.* 1886, p. 426.) *H.* A remarkable form of dwarf bushy habit, covered with fl. and fr. throughout the greater part of the year. Garden variety.

CROCUS AERIUS. (*B. M.*, t. 6352, f. B.) Iridaceæ. *H.* Allied to *C. biflorus*. Corm with brown cartilaginous tunics. L. narrow linear, short when in fl. Fl. 2 in. in diam., pale lilac, with a yellow throat. Anthers yellow. Stigmas entire, orange-red. Asia Minor.

CROCUS KARDUCHURUM. (*G. C.* xxvi., p. 404.) *H.* Something in the way of *C. zonatus*, but the fl. are smaller, blue veined to about half way up with fine purple lines, and the segments marked above the throat with two small orange spots.

CROCUS KOROLKOWI. (*B. M.*, t. 6852, f. A.) *H.* Something in the way of the common yellow Dutch Crocus, but distinguished by the narrower segments of its yellow fl., the 3 outer ones of which are brownish outside. Stigmas entire, orange-red. Central Asia.

CROTON. The plants described under this name are not true Crotons, but belong to the genus *Codiaeum*.

CROTON PHILLIPSII. (*Williams' Cat.*, p. 24.) *Euphorbiaceae*. *S. shr.* A pretty variety, with linear-lanceolate l., 8 to 10 in. long, by $\frac{3}{4}$ in. broad, the base of the l. rich golden yellow, extending half way through, and continuing along the centre nearly the whole length.

CROTON WIGMANNII. (*Williams' Cat.*, p. 24.) *S. shr.* A good table decorative plant, with l. 8 to 10 in. long by $\frac{1}{2}$ in. broad, irregular in form, rich green, blotched with yellow.

CYCAS BELLEFONTI. (*Ill. H.*, t. 586; *Cat. Comp. Cont. d'Hort.*, p. 9.) *Cycadeae*. *S. per.* An elegant Cycad, with a crown of ascending and gracefully arching pinnate l., 5 to $5\frac{1}{2}$ ft. long; leaflets very numerous, linear-lanceolate acuminate, entire. Tonkin.

(To be continued.)

THE HORTICULTURAL CLUB AND THE ROYAL HORTICULTURAL SOCIETY.

THE annual dinner of the Club took place on Tuesday last, when there was a large attendance of members to meet Sir Trevor Lawrence, the President of the Royal Horticultural Society. Amongst those present were Mr. John Lee (Chairman), the Hon. and Rev. J. T. Boscawen, Dr. Hogg, the Rev. W. Wilks, Messrs. Geo. Maw, Harry J. Veitch, Philip Crowley, H. J. S. Pearson, C. J. Pearson, Arnold Moss, Geo. Paul, Geo. Bunyard, A. H. Pearson, T. Francis Rivers, J. Laing, Harry Turner, J. S. Cousins, T. W. Girdlestone, the Rev. H. H. D'Ombraim, Hon. Sec., &c.

The meeting received additional importance from the fact that a sub-Committee of the Club had been appointed to consider the position of the Royal Horticultural Society, and to place some suggestions before the President of the Society, as embodying the opinions and views of the outside public on the position and affairs of the Society.

The Chairman, after proposing the health of "The Queen," then gave what he said might be called the toast of the evening, "The Prosperity of the Royal Horticultural Society," coupled with the name of their esteemed President, Sir Trevor Lawrence, and in an admirable speech traced the history of the Royal Horticultural Society, and said that although its present position seemed to be so precarious, he was sure the horticulturists of England would rally to it if it could procure a home of its own without connection with or interference with any other body.

Sir Trevor Lawrence replied, and thanked the Club for the kind interest it had taken in the Society, and spoke hopefully of its future. He quite agreed with the desirableness of the Society having a home of its own, and thanked the sub-Committee for their suggestions, which he would lay before the Council.

Messrs. Veitch, Pearson, Paul, and others took part in the conversation that followed, all dwelling on the necessity of the Society having an independent footing.

The Chairman proposed the "Prosperity of the Club," coupled with it the name of the Secretary, who briefly replied. Dr. Hogg proposed in a feeling speech the "Health of their Beloved Chairman," who briefly responded, and the meeting broke up after having spent a most agreeable evening. The tables were kindly decorated by Mr. T. A. Dickson of Covent Garden, and Mr. G. Bunyard kindly supplied some beautiful fruit for dessert.

The following are the suggestions submitted to the President of the Royal Horticultural Society by the sub-Committee of the Club:—

1, It is suggested whether it might not be advisable to enlarge the number of the Council of the Royal Horticultural Society, with the view especially of giving a larger representation to horticulturists in the provinces.

2, It is suggested whether it would not be possible to create a form of membership for one guinea annually.

3, It is suggested that it would be very undesirable to fetter the Society by any permanent or binding contract with the Royal Albert Hall Corporation or any other similar body. It is hoped that a suitable position and necessary building may before long be provided by the Society itself for its own sole use and accommodation.

4, It is suggested that it would be very desirable to alter the date of the annual general meeting to some period of the year (say May or June) when there is better opportunity for the attendance of Fellows.

NATIONAL CHRYSANTHEMUM SOCIETY.

ANNUAL GENERAL MEETING—JANUARY 31st.

THE annual general meeting of this Society was held at the Old Four Swans, Bishopsgate Street, on Monday evening the 31st ult., the chair being taken at 7 P.M., by the Vice-President, R. Ballantine, Esq., in the absence of the President, E. Sanderson, Esq., who is travelling in central France for the benefit of his health. There was a large attendance of members, over fifty being present, and the business was not disposed of until a late hour. This was chiefly owing to the length of time occupied in the election of the General Committee, but changes in the method adopted will facilitate matters considerably on another occasion.

The business commenced by the Hon. Secretary reading the circular calling the meeting, which was followed by the appended report and balance-sheet.

REPORT, 1886.

The Committee in presenting the balance-sheet for the season, 1886-7, have the pleasure of recording that it has been an era of unqualified success in the annals of the Society.

For the first time three shows have been held, and each in its way has fully justified this new departure. The September show was a source of great interest, not only to growers of Chrysanthemums, who thus had an opportunity for the first time of comparing the merits of the best of the early flowering varieties, but also on account of the excellent show of Dahlias and Gladioli, both of which were exceptionally fine, and the Committee hope that in 1887 this show will assume still larger proportions. Of the November fête it is only needful to state that it excelled that of any previous year both as to number and quality of the exhibits. The January show, in spite of the severity of the season, brought visitors and exhibits from all parts of England, and it was a generally expressed opinion that in promoting this exhibition the Society was doing a most useful work, as it clearly proved that the season for Chrysanthemums could be satisfactorily prolonged during midwinter.

During the year a new catalogue has been issued, which has been well spoken of in all quarters, and the best thanks of the Society were accorded to Messrs. Addison, Davis, Payne, and Springbett for the time and care they had devoted to its preparation.

The Floral Committee have met regularly, and no less than 287 varieties were submitted at the several meetings, and forty-four certificates awarded. The financial position of the Society remains good, and the year closes with a balance in hand of £7 4s. 1d., irrespective of the reserve fund.

Arrangements have been made with the Royal Aquarium Company for again holding three shows. This entails a severe strain upon the resources of the Society, and the Committee trust to the liberality of all lovers of the Chrysanthemum to subscribe to the prize fund or to become members, as it is only by continued and united effort that the usefulness of the Society can be maintained.

The annual dinner was held December 13th, when 113 members and friends of the Society were present, and one of the most pleasing incidents of the year was the presentation to Mr. William Holmes, the Honorary Secretary, of a testimonial, consisting of an address on vellum and a set of epergnes, subscribed for by over 100 members and friends, as a mark of their high esteem and regard for the great services he had rendered to the Society.

The Committee desire to tender their grateful thanks to the donors of special prizes for the past season, and especially to W. H. Callington, Esq., for the liberal support he has so kindly accorded to the midwinter show.

BALANCE-SHEET, 1886-87.

		RECEIPTS.		
		£	s.	d.
Trustees of Reserve Fund		14	11	1
Arrears of 1885		2	6	0
Subscriptions		132	15	0
Donations, Special Prizes, &c.		56	9	0
Entry Fees		22	18	0
Aquarium Company		231	15	1
Mr. W. Holmes' Special Donation		10	0	0
Medals, Certificates, &c.		28	9	0
Affiliation Fees		9	19	6
Advertisements		16	5	0
Sale of Admission Tickets		51	18	0
Sale of Catalogue		11	15	2
Medals on hand		2	2	6
Tickets on hand		3	16	0
		£594 19 4		

		EXPENDITURE.		
		£	s.	d.
Deficit on 1885 Account		14	11	1
Prizes (three exhibitions)		327	18	6
Breakfasts, Judges and Committee (three exhibitions)		20	9	10
Hire of Fine-foliage Plants		18	6	0
Advertisements		16	10	0
Printing, General Account		34	5	3
Printing Catalogue		14	18	6
Sundry Expenses—Exhibitions and Meetings of Floral Committee		11	3	8
Commissionaires		1	17	6
Tinbes and Baize Floral Committee		1	17	1
Hire of Rooms for Meetings		3	12	0
Judges' Fees		4	4	0
Medals		52	5	0
Postages, Postal Orders, and Cheque Books		24	1	7
Stationery and Sundries		6	4	8
Clerk at Exhibitions		5	5	6
Badges		3	10	0
Admission Tickets		50	0	0
Bill Posting		6	5	1
Collector of arrears		1	0	0
Annual Dinner Expenses		3	15	0
Cartage and Labour (three exhibitions)		5	15	0
Balance in hand		7	4	1
		£594 19 4		

In moving the adoption of the report Mr. Ballantine remarked that £100 more prizes had been given in 1886 than in the preceding year, and the subscriptions had increased by nearly £40, showing that the Society was making steady progress, although the balance was not a large one. Mr. R. Dean seconded the motion, which was carried unanimously. A proposal by Mr. Holmes that the balance of £7 4s. 1d. be transferred to the reserve fund was also adopted, and the Treasurer (J. Starling, Esq.) observed that he would like to see the reserve fund substantially increased; even if the members only contributed 1s. each it would increase the total materially. A list of the names of members in arrears with subscriptions was then read, and as the persons had been repeatedly applied to it was decided to erase their names from the Society's books. Votes of thanks having been passed to the Auditors (Mr. Drain, jun., and Mr. Crane), fourteen new members elected, and the names of four societies desirous of becoming affiliated

with the National having been read, the meeting next proceeded to the election of officers. The following were unanimously re-elected:—President E. Sanderson, Esq.; Vice President, R. Ballantine, Esq.; Treasurer, J. Starling, Esq.; Hon. Secretary and Superintendent of Exhibitions, Mr. William Holmes; Auditors, Messrs. Drain and Crane.

The election of the General Committee next occupied the attention of the meeting, and it was decided that it should consist of thirty-six members as before, forty-nine nominations being received. This necessitated taking the votes for each member proposed, which took considerable time, the following being those finally elected:—Messrs. G. S. Addison, T. Bevan, W. Blake, W. E. Boyce, H. Cannell, Lewis Castle, R. Dean, N. Davis, G. Drain, jun., H. Drake, H. Figgures, Gifford, S. Gilbey, G. Gordon, C. Gibson, E. C. Jukes, Jones, J. P. Kendall, E. Kemp, F. J. Long, G. Langdon, H. Mardlin, Nicholls, Newton, Owen, C. Harman Payne, R. Payne, G. Prickett, W. Reeve, G. Stevens, R. Swift, J. Springbett, J. Wright, J. Williams, and B. Wynne.

The Secretary stated that the Royal Aquarium Company had decided to offer the same terms for the November and January Shows as before, but the amount at the September Show must be reduced to £50. The special prizes contributed by various friends of the Society were then noted, including Mr. Cullingford's £10, those offered by Messrs. Wood & Son, Wood Green, the Veitch Memorial prizes, consisting of medals and money prizes in five classes. Messrs. Webb & Sons' prizes for vegetables have been increased, and Messrs. Sutton & Sons repeat their former offers. Messrs. H. Cannell & Sons offer £20 in prizes for new varieties; Messrs. Delaux of France, and Colchester of Ipswich, also offering prizes. The preparation of the schedule was then referred to a sub-Committee, and after the transaction of some general business the meeting terminated with the usual votes of thanks to the Chairman and officers.

THE THANATOPHORE.

LAST week we gave an illustration of one form of this new steam fumigator, supplied by Mr. B. S. Williams, Upper Holloway, and we now give two others, both constructed on the same principle. No. 1 (fig. 15), is an extremely useful size, and as it is readily heated with a spirit lamp, it is especially adapted for frames or small houses, and amateurs will find it very serviceable. Like the others it is furnished with a reservoir, which is filled with tobacco juice, then carefully inverted with the thumb or finger over the mouth of the pipe and



Fig. 15.

inserted into the boiler. Methylated spirit is used in the lamp, and it can be safely placed inside a house (not too near any plants), and is large enough for one with a cubical contents of 40 yards.

The intermediate size has already been noticed, and the third size, which is the largest, is shown in fig. 16. The chief difference in this is that the reservoir is furnished with a gauge, a funnel, and stop-cocks, so that it can be readily refilled with removal, and it can be seen at a glance when the supply of tobacco juice is becoming exhausted. This is said to be suitable for houses of 300 cubical yards. All these fumigators are remarkably well constructed of copper, and with ordinary care should be very durable.

AURICULA NAMES.

YOUR correspondent "Northern Amateur" seems as keen on this subject as the northern air. However, he is wrong again, as the plant grown in the south as Campbell's Green Edge was sent to me long before poor old Cunningham died. It could not, therefore, have been brought by Mr. Campbell or anyone else to Falkirk after his death. Probably the plant alluded to by your correspondent and the one grown here are not the same. That is the only solution I can offer. If your correspondent gives me his address I will send him a plant, as he seems anxious about it. It is quite right that the names of plants and their

raisers should be correctly given. Mr. Campbell doubtless remembers sending me a box of blooms in April, 1875, and the correspondence we had thereon. He sent me an offset of the Green Edge subsequently, and if it was a seedling of Cunningham's he can say so. I do not agree with your correspondent about the value of the "grand old varieties." Pizarro (Campbell) is a good self, but it is nowhere against the new ones. Prince of Gems (Trail) is comparatively new, but if that variety is left out, what other grand old flowers are there in the class? George Lightbody (Headly) is a very fine variety in the grey class,

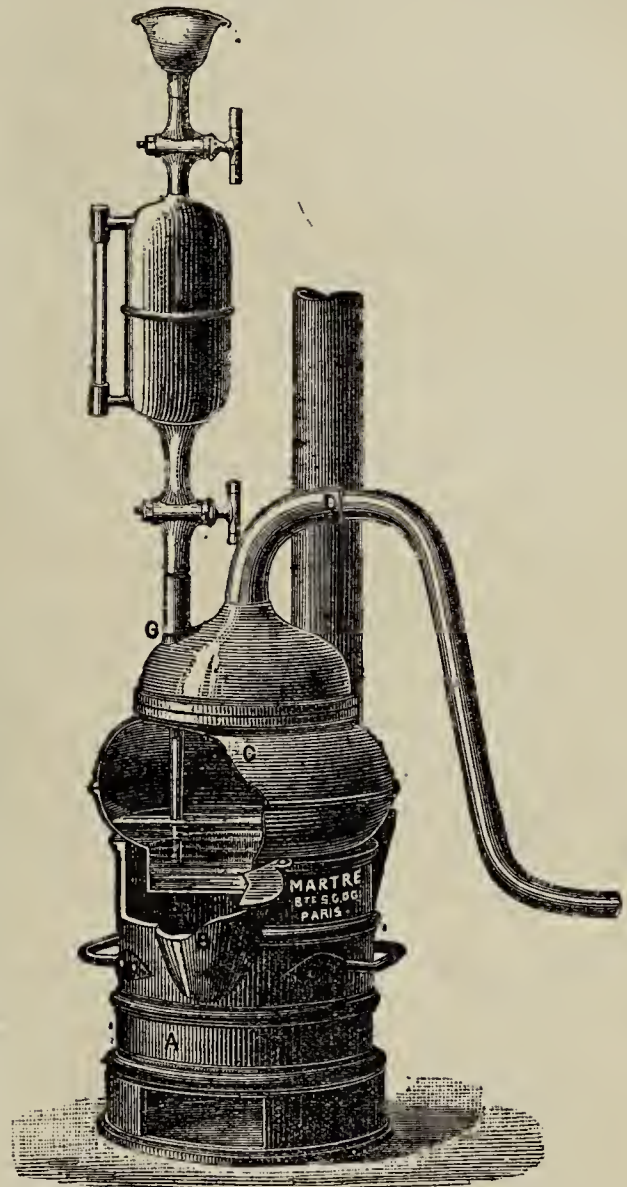


Fig. 16.

and Smiling Beauty (Heap) is a really good white-edge. Will your correspondent name three in each class of what he considers the old standard sorts?

I well remember having a conversation with my old friend Mr. Meiklejohn about Lady Sophia Dumaresque. He told me he did not know who raised it; but he added, "From its general resemblance to Maria and Sophia I should say it is probably a seedling of Chapman's." That is as near as I can recollect the words of Mr. Meiklejohn. It is a much more vigorous grower than either, but that is nothing when we consider the rampant growth and robust constitution of Marquis of Lorne (Campbell) and the miserable growth of its brother Duke of Argyle by the same raiser. I would like to add that I am not conscious of having done any wrong in giving away plants of the Auricula in question, as it was given to me without any conditions fourteen years ago. As to incorrect spelling of Auricula names or that of their raisers, editors of papers and their correspondents may err in this, and are doubtless glad to be corrected.—J. DOUGLAS, *Iford*.

THE CULTURE OF SHOW AND FANCY PELARGONIUMS.

THESE can be seen remarkably well grown in some gardens, and are some of the most useful flowering plants for the decoration of the conservatory and greenhouse during several months of the year, but they will not pay the cultivator for the slightest neglect, being subject to aphides, which soon spoil both foliage and flowers, and to damp if the plants are placed in too moist and close an atmosphere. If it is necessary to increase the stock of plants, cuttings may be struck at once singly in small pots and placed on shelves near the glass in any house where the temperature ranges about 50°. These, when well rooted, will require one or two shifts into larger pots, and will bloom during

the summer. The old plants after flowering should be placed out of doors in a sunny position to ripen the wood of the current year's growth, water being gradually withheld so that the plants get a thorough rest for about two months, but they should be examined occasionally and not allowed to become withered. Cuttings ought to be taken soon after the plants are placed out; some of them may be grown in an intermediate house as near the glass as possible, and they can be had in flower early in the following spring. The old plants should be pruned to within 2 inches or so from the old wood, and then well watered, which will cause them to break into new growth. At this stage turn the plants out of the pots, shake the soil away from the roots, and cut a few of the largest off, especially any that are entwined together. Repot into the same sized pots, or smaller if the roots will allow it, as the plants will be benefited by so doing, a quantity of sour soil being very injurious to them during the winter months.

The compost suitable for Pelargoniums I find is three parts good fibry loam, one part leaf mould and sand, with a liberal sprinkling of charcoal, and a 6-inch potful of soot to every barrowful of compost. I prefer to give manure in a liquid form during the spring months; soot water given once a week will prove beneficial. Repot as the plants require it. The longest growths may be pinched once or twice to give symmetry to the plant, and will also obviate the necessity of using too many stakes, which always spoils the appearance of any plant, whether it is grown for exhibition or home use. Better plants will be produced if grown in a cool house, and on the first appearance of green fly fumigate twice or thrice in succession with tobacco paper. It is of great importance to have the plants free from insects before the flowers open, otherwise the bloom will be ruined if fumigation is used. There are at present many varieties in cultivation; I will only name a few which are good ones—viz., Dr. Masters, Beauty of Oxtou, Queen Victoria, Claribel, Sappho, Volonté Nationale album, Devastation, Queen of Whites, Lord of the Isles, Decision, Sylvia, and Duchess of Lancaster, this is a very good variety, white, with two deep red blotches on upper petals, and beautifully fringed.—G. GARNER, *Amberwood Gardens, Hants.*

THE ANCIENT SOCIETY OF YORK FLORISTS.

THERE is little doubt that the Ancient Society of York Florists has a strong claim to the distinction of being one of the oldest societies of the kind that is now in existence in the country. Though its origin is involved in obscurity, it is a well authenticated fact that in the years long past a company of gentlemen who had conducted an exhibition of flowers formed themselves into a society which was named the York Society of Florists. The anniversary of the Society was held recently, and in connection with it the following particulars will be read with great interest. They are taken from a book published in York in 1813, entitled "Rules and Regulations of the York Society of Florists, together with an abstract of the properties of the flowers shown in the Society, and a brief analysis of the manner of cultivating them as adapted to the climate of the city of York."

The preamble is as follows—"Happiness being the ultimate end proposed by society, it is necessary that all proper, lawful, and effectual means be made use of to procure it. Two points appear essentially necessary to the constituting and supporting of every meeting founded on such a plan—the first showing the pleasure and advantages to be reaped—the second the evils to be avoided. First, the pleasure that the cultivation of flowers affords sufficiently appears from their being the taste of the curious of all ages and countries, not only from their beautiful forms, lively tints, and grateful odours, wherewith they so highly regale the senses, but also from their real use. Flowers so forcibly strike the eye that they never fail to inspire us with a certain joy, and when we have sufficiently examined the fairest we are sensible they are designed to refresh the sight, the prospect they afford is pleasing, and we experience their power to be so effectual that the greatest number of those arts which are ambitious to please appear most successful when they borrow their assistance. Sculpture imitates them in its softest ornaments. Architecture bestows the embellishment of leaves and flowers on those columns and fronts that would otherwise be too naked. The richest embroideries are little more than foliage and flowers. The most magnificent silks are almost covered with these charming forms, and are thought beautiful in proportion as they resemble the lively tinge of natural flowers. For these reasons great numbers both at home and abroad have employed their leisure hours in the delightful and healthful employment of propagating them with the greatest diligence. And as the taste for flowers and the pleasure of disclosing them to the view of others are almost inseparable, we consider their cultivators as an agreeable band or society who communicate to each other the observations their experience has enabled them to make. With these intentions a Society assembled at York on Wednesday the 20th of April, 1768, and afterwards at a general revision of the rules on Monday the 8th of February, 1813, which brings us to the second part—namely, the evils to be avoided.

"In all companies that have been formed to encourage any art or science it has been found absolutely necessary to frame certain orders or rules for the better conducting thereof, and also for the preventing disputes, particular opinions, and self interest; evils that have always utterly destroyed and brought into confusion the best designs, unless prevented by some speedy remedy. We, the present members of this Society, having seriously considered these matters, and being truly desirous and, to the best of our power, willing to promote the cultivation of flowers, have, from experience, been sufficiently enabled to draw up, and likely clearly demonstrate, the necessity and utility of the following rules." Then follow the rules relative to the election of officers, the concluding one of which states that "Any member refusing to take upon him the office of President, Steward, Secretary, or Judge shall forfeit the sum of 2s. 6d., and the next in rotation shall be taken, or a new list shall be made if necessary." Proceeding, the rules set forth that any gentleman desirous of becoming a member must be supported by two-thirds of the members present, and "he shall, after signing his name to these regulations, and paying 2s. 6d. unto the stock, be

deemed a member, and have a copy of these rules delivered unto him." "The admission money, or fine, paid by every member is 1s. on the Auricula, and 6d. on every other day of the show. The sum of 6d. must be paid by the owner of every flower shown for a prize unto the receiving Steward at the time it is entered. There shall be annually five shows. . . . Each member to be allowed to show one flower in every class in each show, and no more, and to weigh one Gooseberry in each colour."

Detailed directions to exhibitors are then given, and in regard to the judging it is stated "every flower shown to be privately numbered by the receiving steward at each show, and a sealed paper containing the numbers and owner's name of each flower to be delivered by him unto the President, who shall, after all the flowers are adjudged, open it and declare the prize. Any member claiming a prize, or naming the owner of any flower shown before the President has declared all the prizes, shall be fined two shillings and sixpence, to be immediately paid. The Secretary, under the direction of the President, shall nominate six persons at each show, and the members showing flowers shall choose three of them for judges." Following this are several rules for protecting the Society against offences, such as "any person presuming to find fault," of a winning prize being "fraudulently made up," or of "cutting or clipping any part of a flower shown for a prize," the penalty in such cases being fines of one shilling, two shillings and sixpence, or deprivation from the privilege of showing a flower for twelve calendar months; while for the more serious offence of "any member using false pods or petals, putting the interior in place of the exterior petals of Tulips, or practising any similar fraud in making up or dressing a flower for show" he should be immediately expelled the Society. A *nota bene* states: "The evil consequences of political or religious disputes being self-evident, it is earnestly desired, and indeed presumed, that no member will introduce them, as such a dispute would compel the President to be peremptory in enforcing the above regulation"—i.e., in the event of a dispute to impose a fine of a shilling, or to expel the parties from the room. Then follow instructions to the judges. These stipulate conditions as to pots and phials wherein flowers are shown, and state that "All flowers, which the judges are convinced contain clipped or cut petals, must be delivered unto the President, and the cause stated. Should any flower ever come under the inspection of the judges which is artificially made up as being pasted or glued, or containing false leaves or petals, bells, pips, pods, or any part thereof, or Tulips with the leaves transposed, or which they are convinced are in any respect fraudulent, such must also be delivered unto the President, and the reason why explained unto him publicly. As it very seldom happens that any flowers are shown which can be considered perfect, the judges will have to decide which approach the nearest unto that state, and will no doubt examine strictly, first the form of such as are under their inspection, and secondly the colouring, and they will, it is presumed, always decide that those flowers are the best which, along with the best formation, carry the highest and purest colour, and the best distributed according to the nature of the respective flowers they have to decide upon." Detailed descriptions are given of the properties of the Auricula, the Polyanthus, the double Hyacinth, the Tulip, the Anemone, the Ranunculus, the Pink, the Carnation, the Picotee, and instructions are added for the cultivation of most of the above named flowers. The directors of the Society in 1813 were "Mr. Henry Smith, President; Mr. Geo. Brown, Senior Steward; Mr. Geo. Tireman, Second Steward; Geo. Healey, Esq., Junior Steward; Mr. John Rippon, Secretary and Treasurer." Mr. Charles Meynell, who became a member in 1768, was Senior Florist, next to whom in seniority were John Telford, Esq. (1768), George Telford, Esq. (1771), Mr. William Tate (1781), Mr. William Blanchard (1786), Mr. Thomas Harper (1795), Mr. William Ardington (1795), the last of whom in 1829, when considerable alterations were made in the rules, occupied the position of Senior Florist.—(*York Herald*).



THE HARDY FRUIT GARDEN.

A WELCOME change in the weather has rendered it possible in most gardens to make good progress with seasonable work among the fruit trees. Nor for various reasons should it be delayed more than can possibly be avoided. Pruning, nailing, and manuring old trees and the planting of young trees yet remains to be completed in many instances, and a few brief hints bearing upon these important details are appended.

APRICOTS.—These are the first to bloom, and ought at once to be attended to. The fruit is borne principally upon the short spurs formed on two-year-old wood, and also in some instances on the last season's well-ripened growths. The latter, if sturdy, may be laid in to its full length wherever there are vacant spaces yet to fill, but if it is at all weakly or badly ripened it should be shortened considerably. All long lateral growth to be cut back to within about 2 inches of the old wood, and round these will eventually be formed a cluster of blossom buds. Long spurs, or say about 6 inches and upwards from the walls, are objectionable, and where these prevail a number of them may well be freely shortened, cutting where possible to a back growth or spur. It is almost useless to plant Apricots on cold badly drained land. In such cases rather high planting will preserve them for a time, but good drainage is preferable. Old trees, especially those under copings, ought to receive good dressings of partially decayed manure, but on no account should a rich compost be given to young trees, this encouraging a very rank growth, to be followed by gumming and other evils at an early date. Turkey, Moorpark, and Hemskirk are all desirable varieties.

PLUMS.—These may be pruned and trained in every respect similarly to the Apricot, a too free use of the knife, in the case of young trees especially, being injurious to both. The main branches may usually be laid in to their full length just as received from the nurseries, plenty of lateral growth as well as leaders being forthcoming according as the tree gains in strength or recovers from the severe check given when transplanted. If these strong young shoots are cut back in any way, laterals are formed at the extremities only, and probably no fruit spurs for a long time, whereas if unpruned there is every probability that fruit spurs will be formed throughout their full length. In this manner a fruitful tree will be most quickly obtained, though even in this case a winter root-pruning may eventually be needed in order to keep the roots near the surface, and also to check extra strong growth. Standard trees may have their branches cut when there are insufficient to form a well-balanced head, and those well established are most profitable when freely thinned out, plenty of light and air being most conducive to the formation of good fruitful growth. Plums are by no means fastidious as to position, as we have some on walls in all aspects. Morocco is a good early sort, better as regards size and flavour than the more heavy cropping Rivers' Prolific. Other good culinary sorts are Victoria, Pond's Seedling, Dove Bank, Early Orleans, Orleans, Prince of Wales, and Washington; and for dessert purposes Angelina Burdett, Kirke's, Jefferson, Green Gage, Oullins Golden, Transparent Gage, Coe's Golden Drop, and Imperatrice. The common Damson is the best in point of quality, but the Crittenden or Cluster is much the most prolific.

PEARS.—We commence pruning and re-nailing the wall trees of these early in the winter, and continue the work whenever the weather permits. Supposing all lateral growth on well-established trees were only lightly shortened at their summer pruning, they will now require to be cut back with all secondary growth attached to within about 2 inches of the main stems, and the weaker shoots still closer. These closely pruned shoots will eventually become surrounded by fruiting spurs, the time taken up varying according to the vigour of the trees, the rankest growers being the longest in arriving at a fruitful stage. All leading growths to be laid in to their full length, and unless the trees are growing very strongly many fruit buds may develop on them during the year. The lower branches of espaliers or horizontally trained ought for the first three years at least to be trained somewhat obliquely, or otherwise they are unable to keep pace with the higher and more favourably situated branches, these attracting the greater amount of sap. Pyramidal, hush-shaped, and standard trees ought not to be neglected, nor, on the other hand, is it wise in many instances to be too free with the knife. Where the trees are frequently lifted very little lateral growth and plenty of fruit buds is the usual consequence, no harm being done by cutting out the greater portion of the young shoots. But the more strong vigorous trees are cut the greater the amount of gross unfruitful growth resulting, and if root-pruning is not resorted to a different style of pruning must be adopted. If the lateral growth is freely thinned out and all the best placed reserved to its full length, these in many instances will be clothed with fruit buds next winter and the whole character of the tree be changed. No topping these growths should be resorted to, or the experiment will end in failure. A good assortment of Pears for walls and as garden trees consists of Jargonelle, Williams' Bon Chrétien, Beurré d'Amanlis, Beurré Superfin, Beurré Hardy, Louise Bonné of Jersey, Marie Louise, Doyenné du Comice, Maréchal de Cour, Pittmaston Duchess, Thompson's, Van Mons Leon Leclerc, Huyshe's Prince Consort, Hacon's Incomparable, Beurré Bachelier, Beurré d'Arenberg, Glou Morceau, Josephine de Malines, Bergamotte Esperen, Easter Beurré, Jean de Witte, Olivier de Serres, and Madame Millet.

CHERRIES.—Much that was advised in the matter of pruning Plums is also applicable to Cherries. They bear fruit principally on the spurs of pruned trees and on the young wood formed the preceding year. All the strong growers are kept closely spurred back, the main branches only requiring to be re-nailed occasionally. In the case of Morellos, these should be treated more like Peaches, having their main branches rather thinly trained to allow good space for laying in the young shoots that are to bear fruit this season. The pruning merely consists of cutting out as much of the old bearing wood as possible, replacing this by the young wood formed during last summer, all of which may be laid in to its full length. All the fastenings of wall trees of all descriptions ought to be frequently examined, much injury being done by both the shreds and nails when these interfere with the free swelling of the stems. We do not cut back newly planted trees, and as they are given plenty of fresh loamy soil to root in, a small crop taken from them the second year after planting does not materially check the desirable free growth. Standard and pyramids pay for thinning out, but it is not advisable to practise spur-pruning. Early Rivers, Black Tartarian, Elton, Bigarreau, Mary, Morella, and Florence, are good sorts for walls, and these, with the exception of the last named, as well as May Duke, Late Duke, and Kentish, are also suitable for pyramids and standards.

FRUIT FORCING.

FIGS.—*Earliest-forced Trees in Pots.*—These are now in full growth, the points of the shoots must be pinched out when they have made a growth of about 5 inches. Continue a temperature of 55° to 60° at night and 65° by day, advancing to 75° with sun heat, closing early and allowing an advance to 80° or 85°. In dull weather give a little extra fire heat in the early part of the day, so as to allow of ventilation if only for an hour or two to give a change of atmosphere. The bottom heat should be kept steady at 75°, introducing fresh leaves as necessary. Syringe frequently to keep red spider in check, and always sufficiently early in the

afternoon to allow of the foliage becoming dry before night. Regularly supply water and liquid manure to the roots of the trees.

Early-forced Planted-out Trees.—When the trees have commenced growth the temperature should be slightly raised both at night and by day, 55° being a suitable night temperature and 60° to 65° by day, with a rise of 5° to 10° from sun heat. Syringe twice a day on fine days, but on dull days morning syringing, or when very dull damping available surfaces about the house will be sufficient, ventilating on all favourable occasions, as a drawn and weakly growth cannot afterwards be rectified, therefore seek a sturdy short-jointed growth from the commencement. The surface of the border should be mulched with partially decayed manure, and in a lumpy state, so as to allow the roots to have the benefit of the air. Through the mulching waterings in a tepid state should be given as necessary.

Second Early-forced Trees.—Where there is more than one Fig house a second may now be started. The trees will have had the strong old growths cut out so as to leave the terminals for furnishing the first crop, and been dressed with an insecticide; if not, those matters must be attended to without delay. The border should be brought into a thoroughly moist state by repeated watering if necessary with tepid water, or in the case of restricted borders with liquid manure at 80°. Syringe the trees occasionally, also keep all available surfaces damped twice a day. A temperature of 50° at night and 55° by day is sufficient to commence with, advancing to 65° from sun heat.

MELONS.—Add a little soil as a top-dressing as the plants grow keeping them near the glass to prevent drawing, but do not allow the plants to become stunted for want of pot room, shifting those intended for trelliswork into larger pots as they require it, training with a single stem, putting a stake to each, to which the plants should be secured as they advance, removing all laterals as soon as visible up to the height of stem required to reach the trellis, as also all tendrils. Those intended to run over the surface of the bed in pits, &c., should have the lead pinched at the second rough leaf, and instead of shifting into larger pots they may be planted out in their permanent quarters, either before or after stopping. Keep a sharp look out for slugs. A ring of soot or lime placed round the plants will generally preserve them, but baits should be laid for them so as to entrap the pests. Brewers' grains or scalded bran covered over with Lettuce or Cabbage leaves form an excellent bait for both slugs and woodlice.

PINES.—Continue the treatment advised in our last calendar under that head to those plants recently started into fruit. The plants if in good condition at the roots will produce strong suckers. When the suckers are large enough to handle, all, except one to each plant, should have the growth checked by taking out the centres of those not wanted.

To supplement the autumn-potted plants select others which have been wintered in 7 or 8-inch pots, choosing the most vigorous plants. The remainder of such plants should be reserved until the general spring potting, when they should be shaken out and treated similarly to suckers. Good fibrous loam with the turf reduced, or if used fresh it should be placed where it will be heated so as to kill the grass and any larvæ it may contain, and torn up in a suitable compost, adding about a quart of soot to every bushel, and a similar quantity of some approved fertiliser. If the turf has been laid up it must be had under cover to become dried. Drain the pots moderately but efficiently, dusting with wood ashes or soot over them so as to exclude worms, and, keeping the plants well down in the pots, ram the soil firmly round the plants, leaving sufficient space to admit of copious supplies of water being given when necessary. For Queens 10-inch, and 11 or 12-inch pots are suitable for those of stronger or more robust growth. A temperature of 60° to 65° will be sufficient for these plants, also for those potted last autumn, and 80° to 85° at the roots.

Plants in beds about to be started into fruit must not have the heat at the base of the pots over 90° or 95°, or their roots will be injured. If sufficient fruit be started to meet the requirements, later successional plants that have not been subjected to a high temperature may be advanced slowly, they with autumn-potted suckers requiring careful watering, especially where the heat at the roots is supplied by fermenting materials.

CHERRY HOUSE.—Of all fruit trees the Cherry is the most impatient of heat in the early stage of growth, especially when the ventilation is indifferent. Commence ventilating at 50°; allowing an increase of 15°, with proportionately increased ventilation, closing the house at 50°, 45° being sufficient by day artificially, and 40° at night. See that there is no deficiency in the border, giving a thorough supply of water when necessary. Those in pots will require more frequent attention. Syringe only on fine days and early, and damp the surface of the borders whenever they become dry, covering it with partially decayed manure about a couple of inches thick and lumpy. Keep a sharp look out for aphides, and fumigate directly the pest appears.

STRAWBERRIES IN POTS.—Notwithstanding the adverse weather, the early plants have thrown up the trusses strongly, especially Vicomtesse Hericart de Thury and La Grosse Sucrée, the earliest having set freely and, being well thinned, advance rapidly in swelling. Although a moderate temperature is advisable until the fruit is set and commencing to swell, a brisk and moderately moist heat is essential to the satisfactory swelling of the fruit, hence 60° to 65° or 70° should be afforded artificially, with 10° to 15° advance from sun heat, and when the fruit commences ripening a drier atmosphere will improve the colour and flavour of the fruit. Plants advancing to the flowering stage must not be hurried; 50° to 55° is ample by artificial means, and 60° to 65° with sun heat and free ventilation. Another batch should be started without delay, introducing along with President, James Veitch, Sir Charles Napier, &c., some of the early varieties, such as Sir Harry, La Grosse Sucrée, &c., so as to secure the succe-

sion unbroken. Let there be a close scrutiny of the plants for aphides in all stages preceding flowering, and upon its first appearance fumigate, it being very essential that the plants be always clean, but particularly so when coming into flower.

VINES.—*Early-forced Vines.*—In the earliest house attention will be necessary in tying the shoots and stopping them to one or two joints above the show of fruit where space is limited, the auxiliary growths below the bunch being removed, except those from the two lowest joints, which, with those above the fruit, should be stopped at the first leaf and subsequently as made. It is of the utmost importance that the principal foliage be fully exposed to light and air, overcrowding and overcropping being highly prejudicial; at the same time, very close stopping is not to be recommended where there is room for extension, as the extension of the foliage promotes corresponding root-action, therefore preserve all the foliage consistent with its full exposure to light and air. Houses where the Grapes are in flower should have a night temperature of 65°, and 5° more for Muscats. Muscats, Sweetwater, and others that do not set freely should have the points of the bunches drawn to the light, assisting fertilisation by shaking the Vines every day, or dusting the bunches with a camel's-hair brush. Varieties that do not afford pollen freely should have it taken from other sorts, and this dusted over the stigmas. A constant circulation of rather dry warm air will be found highly advantageous. Commence thinning when the berries are about the size of small Peas. Vines in pots will require copious supplies of liquid manure, thinning the bunches somewhat freely so as to induce large berries, not, however, going to the extreme of making the bunches loose, though that is better than clusters of small berries. The temperature when the Grapes are swelling should be maintained at 65° at night, falling 5° on cold mornings; 65° to 70° on cold days, increasing the ventilation—a little being admitted at 70°—with the sun heat to 80° or 85°, at which keep through the day from that source, closing at 80°, and damp all available surfaces. Damping is also necessary in the early part of the day. Great care is needed in ventilating at this season. During such weather as lately prevailed afford air in moderate quantity—a little at a time, so as not to reduce the temperature, only to prevent its rising too suddenly and too high. Inside borders should have a thorough watering with tepid liquid manure—1 lb. guano to 20 gallons of water, applying it at a temperature of 80° to 90°.

Vines Started with the New Year.—These are breaking strongly. Syringe the Vines or rods three times a day until the bunches are formed, when syringing must be discontinued; but maintain atmospheric moisture by damping available surfaces three times a day. Avoid damping the hot-water pipes when they are highly heated, the steam arising therefrom being very different from that given off by cooler surfaces. Keep up a supply of ammonia by turning the fermenting materials, adding fresh horse droppings (a little at a time); but where fermenting materials have not been used, the house may be sprinkled with liquid manure in the afternoon, the evaporation troughs, if any, being filled with the same. Ammonia vapour is good for the foliage, and it is useful against red spider. The temperature should be increased to 55° at night, and 60° to 65° by day, with an advance to 75° from sun heat, ventilation being given carefully, and in accordance with the state of the external air.

Houses to Afford Ripe Grapes in July.—These should now be started. There is no need to cover the border with fermenting materials, but outside borders should be covered with leaves or litter to prevent frost or snow chilling the roots. A bed of fermenting materials within the house conduces greatly to a free and regular break. Syringe the rods three times a day, maintaining a temperature of 50° at night and 65° by day from sun heat. Water the inside borders with liquid manure at 90°, and repeatedly if necessary, so as to bring the soil into a thoroughly moist state.

Late Grapes.—Gros Colman and Gros Guillaume, requiring more time to ripen than Lady Downe's and similar sorts, should be started by the middle or latest end of the month, so as to afford time for their thorough ripening. When well ripened, wood as well as fruit, these are the noblest black Grapes in existence. Avoid fire heat as much as possible to Grapes in the store room, affording air to prevent an accumulation of moisture, replenishing the bottles with clear soft water as required. An equable temperature of 45° is most suitable.

Eyes.—These may now be inserted, using pots, pans, or square pieces of turf. Select firm well ripened wood, filling the pots or pans with rich friable soil, inserting the buds with a pinch of silver sand and half an inch beneath the surface, plunging the pots, &c., in a bottom heat of 80°.

Cut-backs.—Vines raised from eyes last spring, and which are not of a strength for fruiting or planting, should be cut back to an eye or two as near the surface of the soil as possible. When they have made 2 inches of growth shake them out and repot in turfy loam rather rough, with a sprinkling of bones; 6 to 9-inch pots will be large enough. A slight bottom heat is an advantage for these Vines, but it is not essential, maintaining atmospheric moisture by sprinkling the house two or three times a day.

PLANT HOUSES.

Calanthes.—As these cease flowering the pseudo-bulbs may be removed from amongst the soil in which they have been growing. They can be stored in boxes or pans amongst sand closely together, and then placed in a shed or house where they can be kept dry, in a temperature of 50°, enjoying a complete rest for some weeks. A lengthened season of rest is the secret of strong vigorous growth afterwards. Give no water to those still in flower.

Phaius grandifolius.—If a portion of the stock is introduced into a

temperature of 60° to 65° the plants will quickly throw up their imposing flower spikes; the remainder will form a capital succession if they remain in a temperature from 5° to 10° lower. Be careful not to overwater these plants; give them no more than just sufficient to keep them fresh and plump. The syringe must also be kept from the foliage. When the earliest plants come into flower remove them to the conservatory or other structure kept at 45° to 50°. Under this treatment the plants rest thoroughly, and the flowers last fully double the length of time they would do in a moist warm structure. During the time they are in flower, in a moderately cool place, they will need little or no water at their roots.

Thunias.—Many of these plants fail to flower because they are started into growth too late in the season and then grown under too moist and too shady conditions. Such treatment results in lengthy soft growths that will not flower, and often damp off in the winter. A good batch may be started at once in a temperature of 60°. Very little water should be given until they show signs of growth, when the supply must be gradually increased. Liberal supplies can be given them when rooting and growing freely. When these plants are well started the whole of the old soil may be shaken from their roots, and the plants repotted in either a mixture of peat and loam in equal proportions, with a good dash of sand added, and a little decayed manure, or in peat and sphagnum moss. They appear to thrive well in almost any soil, and we have grown them well in fibry loam, manure, and sand, with a little charcoal added, but prefer the more open compost advised above.

Cypripediums.—Such species as *C. villosum* and *C. venustum* will be benefited by removal to a temperature of 45° or 50° while in bloom. They grow afterwards with increased vigour, for they will rest thoroughly under such treatment. Although these plants have no pseudo-bulbs and cannot be kept so dry during their resting season as many Orchids, they nevertheless must have a period of rest, which can only be induced by a lower temperature and slightly drier conditions. While in a cool house very little water should be given, and when this becomes necessary that supplied to them must be several degrees warmer than the house. The plants of *C. insignis*, so useful for various forms of decoration, that have flowered may be top-dressed with peat and sphagnum moss, removing as much of the old material as possible. If the plants are much root-bound a little cow manure in a moderately dry state may with advantage be applied to the surface. Any plants that it may be deemed advisable to repot should have the pans or pots broken in which they are growing, and any portions to which the roots firmly cling must be left attached. The whole of the old compost should be carefully washed with tepid water from amongst their roots. Allow them to drain thoroughly, and then repot them in the same or larger pans. The pots may be at the least one-third full of drainage, and the compost—peat and charcoal—in good-sized lumps should be carefully worked amongst the roots. Sphagnum moss may also be used, but this must be worked in near the surface, for it becomes thoroughly decomposed in one season, and can then be easily removed. These plants will do in a vinery or Peach house, no better place could be accorded them. They will repay for gentle moist heat to start them, and during their season of growth.

Cattleyas.—Remove the plants of *C. Trianae* to the warmest end of the house or a portion of the most forward, where they will quickly unfold their flowers. A little more moisture may be given these plants as well as *C. Mossiae*, both in the atmosphere and about the roots of the plants. This must not be overdone, or else the roots will decay instead of starting presently into vigorous growth. Any plants of the former may be top-dressed, which will give them a neater appearance during the time they are in bloom. Remove from the surface dead moss and supply with fresh. If the plants have been repotted recently the peat on the surface need not be disturbed. Any plants that require larger pots or pans may be left until they have flowered. Plants of *C. Mossiae* that do not need potting may also be top-dressed.

Cælogyne cristata.—Plants introduced into heat a few weeks ago will now be in flower. Give these liberal supplies of water at their roots to prevent the shrivelling of the pseudo-bulbs, but be careful that moisture does not fall upon their pure white delicate flowers, for they are quickly spotted and destroyed. More plants may be introduced into a temperature of 60° to form a succession. The remainder may for the present be kept cool.

THE FLOWER GARDEN AND PLEASURE GROUND.

Replanting Roses.—After Roses have been for some time planted the soil naturally becomes exhausted of much that is necessary for the well-being of the plant. In some positions they need not be disturbed for several years, but directly they give signs of failing vigour, which not unfrequently happens in the course of three or four years, renovating measures must be taken or they will soon become comparatively useless. Liberal spring mulchings of fresh manure, that from a pig yard being most suitable, will serve to keep some soils in a fertile state, but in many instances nothing short of lifting and replanting will much benefit the Roses. As a rule they will succeed better if replanted in quite a fresh site, the soil being deeply dug and well enriched with some kind of solid manure. Failing this a quantity of fresh loamy soil and abundance of good manure ought to be well incorporated with the worn-out old soil. When lifting the Roses as many roots should be preserved as possible, which must not be allowed to become very dry prior to replanting, but all should be lightly shortened with a sharp knife and be well surrounded with good fresh soil. Standards to be staked up at once, or the wind will greatly disturb the roots, and some of the very strongest of the dwarfs also may be staked. Where the dwarfs are strongly rooted above the

point of union with the stocks they may frequently be split into two or more plants with advantage, this being one of the best methods of increasing own-root Roses.

Climbing Roses.—These usually occupy the most prominent positions, yet strange to relate, are the most neglected. In many instances they are planted against sunny walls, perhaps quite close to more vigorous climbers or shrubs, and here they seldom get half enough moisture and very little assistance in the shape of manure or fresh compost. No wonder they soon become shabby and an eyesore rather than an ornament. If not actually lifted and replanted they ought at least to be occasionally partially lifted, much of the old soil being removed and a fresh compost supplied consisting of two parts of loam or good garden soil to one of partially decayed stable or farmyard manure. This coupled with a fairly free use of the knife and liberal supplies of water at the roots early in the summer or before they have become very dry will put new life into the trees. We prefer Teas and Noisettes for all but the coldest positions, these blooming almost constantly throughout the Rose season. Such sorts as Maréchal Niel, Gloire de Dijon, Céline Forestier, William Allen Richardson, Jaune Desprez, Bouquet d'Or, Cheshunt Hybrid, Reine Marie Henriette, Safrano, Catherine Mermet, Alba rosea, Climbing Devoniensis, Madame Lambard, and Souvenir d'Elise are the best for sunny walls and pillars. For exposed positions the old China Ros s are suitable; these, better known as "Monthly Roses," flowering nearly all the year round. The Hybrid China and Hybrid Bourbon varieties are also hardy and free, suitable alike for cold walls, pillars, or fronts of shrubberies. The best of the Bourbon Roses is Souvenir de la Malmaison, and this will flower abundantly and almost constantly against all but north aspects. Acidalia grows to a much greater height and is very free-flowering, but the blooms are not so serviceable as those of the Souvenir. The white and yellow Banksians are very suitable for sunny walls and pillars, but these, it must be remembered, are only summer flowering, and therefore not so serviceable as Teas. For high and cold walls and other positions the Ayrshire Roses, such as Dundee Rambler, Splendens, and Alice Gray, and also the Boursault Amadis, and the evergreen Félicité Perpetuelle, Rampante, Bankæflora, and Leopoldine d'Orleans are all suitable. Any respectable nurseryman will supply any or all of the foregoing, which are often kept in pots, and they may be planted at once.

Herbaceous Borders.—Some of the most vigorous herbaceous plants are gross feeders, and unless very frequently lifted, divided, and replanted in good soil, they soon present a starved miserable appearance. Not only do the old stools push up far too many weakly growths, but if a long spell of hot and dry weather is experienced they flag badly and flower but little. This is especially the case with the Ploxes, of which there are many beautiful varieties, strong clumps of these as well as Asters or Michaelmas Daisies, Pyrethrum uliginosum, Pyrethrum roseum in variety, Spiræas of sorts, Geum coccineum, Hemerocallis flava, Flag Irises, Achilleas, Tritomas, and Potentillas, all pay for transplanting. If all the bulbous-rooted plants are properly labelled or marked in some way, the work of lifting the above named need not be delayed till late spring, at which time there is much other important work to attend to. If it is necessary to completely renovate and replant an herbaceous border it may be safely done in open weather at this time of year.

THE BEE-KEEPER.

THE APIARY.

NOTHING conduces more to successful manipulation than a well-ordered and convenient apiary. Every bee-keeper of experience will agree that a little extra trouble bestowed at the commencement will materially lessen many difficulties which are sure to beset even a practical and experienced bee-keeper when he least expects them, and is therefore but little prepared for such emergencies, although he may have been warned that such difficulties are certain to arise occasionally, even when every possible precaution has been taken to prevent the unexpected happening. It is a sure insight into the general character of a bee-keeper to see his apiary overgrown with grass and tall rank weeds. Neatness and order cost little, but experience will teach many that slovenliness and carelessness bring endless trouble, certain loss, and continual annoyance.

It is necessary always to have a space immediately below the doorboard perfectly clear, so that a dead bee or any unusual *débris* ejected from the hive may at once be detected. Grass may be allowed to grow if care is taken to keep it short, but it is far preferable, unless there some special local objection, to have a space in front of each stock quite bare of herbage and kept clear of all accumulation of rubbish. For a small collection of hives—and for my own part I am not at all sure that the same method might not be pursued

with advantage and profit even in a large apiary—it is better to make a place for the stocks before they are placed in position. There are several ways in which this may be done with good results, but no method is simpler or gives greater satisfaction than turning over the sods, thus burying the grass or other herbage, placing on the top of these upturned sods about 2 inches of cinders from the furnace, clinkers at the bottom and the smaller ashes at the top, treading these firm, then placing an inch of sand on this foundation and again treading firm, leaving the whole for a few days until the sand has been to some extent washed down, when after another treading it will be found that a good surface has been obtained, which with a little occasional care bestowed upon it will look neat, will enable the bee-keeper at once to detect anything thrown out of the hive, will afford a warm bed for bees failing to reach the alighting board at the first attempt, and will, lastly, be a very convenient place for the bee-keeper when manipulating to use for temporarily depositing a smoker or other article which he may be using.

Such a surface may be prepared not only in front of the hives but also between, under, and behind them; but it is most important to have such a surface in front of the hive, even if on the other sides the grass is still allowed to remain. It is far wiser to devote the apiary to the bees and the garden to flowers, and not to attempt to grow flowers around and about the hives, as I have so often seen those who have had little experience in bee-keeping begin to do when planning an apiary. No shrub or tree must be allowed to grow immediately in front of the hive, but at the back a hedge is a very great protection, especially if it shields the hives from the cold north-east winds which, blowing for weeks together in early spring, are the cause of destruction to many of the hardest workers, driving them away from the hive, which, after several attempts, they are often unable to regain if the hives are so placed that these cold blasts can blow with full force upon them. Trees and shrubs at some little distance from the stocks are useful, but if the trees are very tall some swarms may be lost unless means are taken to enable the bee-keeper to reach the bees when they have swarmed near the top. As a rule, however, unless a swarm is disturbed it will settle in a low bush not far removed from the hive; but when a swarm has been once hived and gone forth again, or when the cluster has been disturbed, the second "knit" is not infrequently in a place somewhat more difficult of access. Hives must not be placed too near a hedge or wall. Sufficient room must be left between such hedge or wall and the hives to allow free passage between, and also to prevent the drippings from falling on to the hives, and so creating damp. All places where mice or toads might harbour should be filled up, and care be taken that stands for the hives should afford no protection to any bee enemies. The whole apiary should be kept neat and free from everything which ought not to be there. The hives should look as if there was an intelligent owner not far distant who knows that "a stitch in time saves nine." There should be no tinsel ornament or ostentatious attempt to please the eye at the expense of usefulness and profit. No prim tidiness, but simply a forcible determined effort to show the soundness of the old saying which most of us have heard, "There's a place for everything, let everything be in its place."—FELIX.

SYRIAN BEES.

I HAVE read with great pleasure the very interesting article at pages 57 and 58 by "A Hallamshire Bee-keeper." The Tunisian bees he mentions I have had no experience with, but I am sure his ultimate success and experience with these bees will be interesting to all bee-keepers, and we will hail with delight anything he can tell us about them. His third paragraph is to the point. Let those bee-keepers who have hitherto failed with these foreign and prolific bees peruse the paragraph well, and compare it with the mode of management they have hitherto been advised to (and failed in) by those who teach a different mode of management. Then they may perhaps find out the reason why their foreign bees "cannot do it."

About forty years since a minister was ordained and installed into office here. On a rustic being asked what he thought of the new minister

his reply was, "A real gude and decent kind o' body, but his prayers did nae gude, nor did his swearing dae ony ill." This is and has been the position of many of our writers on bee matters at the present time, with this difference, however, some have assumed to be qualified teachers of bee husbandry, and being interested in the sale of appliances their letters have done much harm.

When writing upon any subject that I am not thoroughly acquainted with, I state exactly my experiences and what I have observed, nothing more. After I repeat an experiment and find the results by ocular demonstration in accordance with my previous opinions, I think the matter out thoroughly if possible, to find whether anything has not misled me in my observations which may have caused me to form false conclusions. Finding all satisfactory and in accordance with Nature and reason, I set down the matter, whatever it may be, as a foregone conclusion.

This course is just what I have been pursuing with my eastern bees, therefore readily comply with the requests of "A Hallamshire Bee-keeper" and give him the history of my Syrian bees. I am inclined to think they are pure; unlike my first Ligurian as well as my last ones. The former, which I had from Mr. Swan of Dunse at a cost of 5 guineas, had scarcely a trace of Ligurian blood in them, and the latter were decidedly crossed with Cyprians, which I detected at once, owing to my previous experience with Cyprians, but without which I could not have detected it. Coupled with that and the disease I termed chloric dropsical fever, I abandoned the Ligurian entirely, but while I did so retailers of Italian queens were holding them up to the public and setting them forth as a superior and prettier strain than previously imported ones. With the exception of these spurious ones mentioned, I must say that nearly all Italian queens I had were pure. On several occasions I had queens as Ligurian, but entirely void of yellow markings. I never learned whether these bees were a different variety or simply a freak of Nature. They much resembled the Carniolian bee. But how did I know these Italians to be pure? Only from what Herman said about them and described at first, and after I had bred a number there could be no question that they were a fixed race of bees. After the Ligurian came the Egyptian. The difference in these two races was very decided. When I became possessed of the Cyprians I observed at once the difference in that race from any other variety I had seen, and when Mr. Frank Benton sent over his first consignment I procured two. I believed they were pure, and queens subsequently obtained proved them a distinct breed, not only in the uniformity of markings on the bees, but in their whole character.

The first Syrian I had from Mr. A. Neighbour was killed in the cage. The bees accompanying it were saved, and I recognised in them a distinct difference from what the Cyprians were, both in colour, shape, and movements. The cause of the death of the queen was, there had been two queens regnant in the hive at the same time. A second queen was sent me, but it was unfertilised, and was of no use. A third one came late in the autumn; it bred greatly, and being unable to attend to them it died.

My next one was had from Mr. A. Neighbour in 1884. It was sent him direct from Syria by Mr. Frank Benton, as the others were, and its progeny were similar in every respect to its predecessors, and are distinctly a fixed variety. That is all I can say about them, and as Mr. F. Benton has not, so far as I have experienced or heard, broken faith with any bee-keeper in this country, we may, I think, without fear, take it for granted they are pure Syrian bees. My imported queen is dead, but as I explained in a previous article, I had a number of queens fertilised in October by the Syrian drones. The progeny are prettily marked, and seemingly a little darker in colour, I suppose from the effects of the climate, and whether it be from the same cause or not, have wintered as well as any other, notwithstanding the fact they have bred the whole winter. In past winters many Syrian bees died. True, although the frost has been protracted, 7° was the lowest temperature this season, but I observed in previous winters many died at as low a temperature. A very strong swarm that belonged to my original queen, old bees, have wintered well. If spared in health I will do my utmost to obtain a few generations of them and see if I can acclimatise them to this country.

As to their temper, I stated exactly their behaviour without giving my opinions, further than saying, if manipulated in a high temperature they would probably be no worse than other bees; and at page 308, in number for September 30th, 1886, I say, "Spiteful and vicious they are at times, but they have this quality, and, unlike the common blacks they do not attack without provocation, while their crosses have proved superior to anything I have ever witnessed." I trust "A Hallamshire Bee-keeper" will observe I do not set them down as "truculent pests," as some do, neither do I think I shall have occasion to alter my opinion of them as good honey gatherers, when the Cyprian and Syrian races were the only ones that gave me honey in 1886, and are promising now that they will not lag behind in 1887. I have faith in them, but will provide them with room, and not prevent their swarming if they are inclined.—A LANARKSHIRE BEE-KEEPER.

FOREIGN RACES OF BEES.

I THANK "Lanarkshire" and "Hallamshire Bee-keepers" for their kindness in replying to my question as to average of honey yield from foreign bees. I must say, though, that I am in as much of a fog as ever, for neither gives any idea as to their takings, but praise the foreigners. "H. B. K." we must excuse, as he has had his apiary out of order for years through disease. I have had some of that in mine, so

know what it is. I am not satisfied with "L. B. K.'s" explanation, but should like to know, as he takes no averages, what was the most he took from a foreign stock last season, a bad one; and what is the most he has ever taken from a foreign stock in a good season. I do not suppose that he knows to an odd pound, but he must know near about the quantity. I have kept bees for a number of years, and do not consider myself a novice: I have spent much time and money on them, have read a good deal and practised more, but cannot get on with these foreigners. I have had one stock of Syrians: they were as quiet as flies until they swarmed, and then they were worse than savage. I have had in all about a dozen stocks of Italians, but no Cyprians, and from the lot I have only had about 40 lbs. of honey. One season I had seven strong stocks of Italians which did not contain as many pounds of honey, while my English stocks had gathered close on 60 lbs. each. It has been said that 1000 lbs. of honey have been taken from a stock of Syrians, but it was in America I believe; we must not, therefore, be surprised, for they do such "tall" things there; we must not expect to approach it in our fickle climate anyway. During past season I have not been able to see any difference in the breeding powers of Italians and English. Stocks of each contained about twenty-five frames of brood at one time, but when honey harvest came the Italians were quickly ahead in numbers, but gathered very little honey, while the English stood still in numbers but gathered plenty of honey. I should like to get at some honey facts.—NOTTS BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

- Kelway & Son, Langport, Somerset.—*Manual for 1887.*
 John R. Box, Croydon.—*Catalogue of Flower and Vegetable Seeds.*
 Lucombe, Pince & Co., Exeter.—*Catalogue of Vegetable and Flower Seeds, 1887.*
 James Cocker & Sons, Aberdeen.—*Catalogue of Vegetable and Flower Seeds, 1887.*
 Thyne & Paton, 18 and 20, Union Street, Dundee.—*Catalogue of Vegetable and Flower Seeds.*
 J. Burrell & Co., Cambridge.—*List of Hybrid Gladioli.*
 James Vick, Rochester, New York.—*Monthly Magazine and Floral Guide (illustrated).*
 W. M. Beale, Neath.—*Catalogue of Kitchen Garden and Flower Seeds.*
 Samuel Yates, 16 and 18, Old Millgate, Manchester.—*Catalogue of Vegetable and Flower Seeds.*
 W. E. Boyce, Archway Road, Highgate.—*Catalogue of Chrysanthemums.*
 Hooper & Co., Covent Garden, London.—*Seed Catalogue, Spring, 1887.*
 James L. Boyson, Caen, France.—*List of New Roses, 1886-87.*
 Brunt, Poitiers (Vienne), France.—*List of New Plants.*
 Fisher, Son & Sibray, Market Street, Sheffield.—*Catalogue of Kitchen Garden and Flower Seeds.*
 Vilmorin, Andrieux & Cie., 4, Quai de la Mégisserie, Paris.—*General Catalogue of Seeds, 1887.*
 Edmondson Brothers, 10, Dame Street, Dublin.—*Spring Catalogue of Vegetable and Flower Seeds.*



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

TO CONTRIBUTORS.—Our friends who favour with communications on controversial subjects will oblige by sending their articles as soon after they receive the Journal as possible. Our space is practically filled on Monday, and only articles that are "expected," and which arrive on Tuesday, can, as a rule, be inserted in the current issue. For this reason we are compelled to hold over some that we would have readily inserted this week had they reached us a day or two sooner.

Making a Vine Border (G. E., South Wales).—Answers on all subjects of gardening on which information is required are readily given without charge to regular subscribers to this Journal.

Campanula persicifolia coronata (Antrim).—We believe the variety is very similar to, if not identical with, the old double variety. The list referred to includes the names of plants that are specially figured and described during the year, but which are not always strictly new.

The Royal Jubilee (F. R. H. S.).—We would publish your letter if we thought there was the slightest chance of its doing good. You, perhaps did not think at the moment of writing that your proposition is outside the range of practical projects; and, moreover, if the letter appeared we should be inundated with replies for which it would be quite impossible to find space in this Journal.

American Blight (Bray).—If you dissolve 4 ozs. of soft soap and half an ounce of soda in a gallon of boiling rain water, and while still hot stir very briskly in a pint of petroleum, and brush this well into the crevices of the bark of your Apple trees, it will destroy all the insects it reaches without injuring the trees when in a dormant state. We have known pure petroleum, that you call paraffin, do considerable damage to young fruit trees.

Planting Trees and Asparagus (M. H.).—Autumn is a better time for planting than spring, but we have planted thousands of trees in February successfully. The conditions of success are small trees well rooted, and those roots kept moist when out of the ground. Large trees with few roots, and these dried, are almost certain to fail. Very much also depends on the weather in March as to whether spring-planted trees grow freely, merely exist, or die. See reply to another correspondent on this subject. The roots of Asparagus should not be shortened, and must not be dried in transit. In planting a round saddle-like ridge should be formed, the plants being firmly set on it, and the roots spread out their full length on both sides.

Boilers (R. C.).—We have nothing to add to the exhaustive notes on different kinds of boilers that appeared in our columns during August and September of last year from Mr. W. Birdney. There are several boilers that would heat your range of houses efficiently if well set and well managed, and we cannot say which is the "best" for a position we have not seen, and thus imply that all others are inferior. There is not a boiler that has lately been advertised in our columns that we could not work satisfactorily.

Gooseberries (Pershore).—You give no indication as to the number you require for your own use for dessert. We name two each of red, yellow, green, and white varieties that are of good flavour, but the fruit of some of them is small:—Red Champagne and Rough Red; Early Sulphur and Yellow Champagne; Glent Green and Pitmaston Green Gage; Snowdrop and Whitesmith. The following are extensively grown for market:—Crown Bob, Lancashire Lad, Keens' S. edling, Whinham's Industry, Red Warrington, and Whitesmith.

Shifting Marechal Niel Rose (W. E.).—The Rose would grow quite as well in a large pot as in a barrel. A pot 18 inches in diameter would support a very large plant, which by annual top-dressings, removing some of the old and adding fresh soil and manure, might be kept healthy for several years. The worst of barrels is they decay at an inconvenient time, and pots do not; these, however, should be shaded from the sun in hot weather. Roses that require more root room may be shifted now, taking care not to overwater afterwards, as if the new soil is rendered sour roots will not enter it freely. As your Rose has grown so well you will know what kind of soil to use, and we observe you ask no question on that point.

Protecting Raspberries (Kittie).—We presume you propose having a skeleton framework over your Raspberry bed, and desire to cover it with wire, the erection to remain permanently. One-inch-mesh galvanised wire would answer, and it may be light, medium, or strong, this being mainly a question of outlay, but governed also by the distance of the battens for supporting the wire; netting of medium strength lasts for many years. It is much cheaper to cover the framework with strong tarred fish netting, securing it to battens placed on the ground from post to post round the bed. This plan answers admirably, and if the netting be stored quite dry in a dry place it may be used for several seasons. It should be high enough for a person to walk under comfortably for gathering the fruit. Of course, wire netting is the most durable.

Water in Unheated Plant Houses (G. C.).—It would be interesting to know on what grounds your informant bases his statement that "an open pan of water placed among plants in an unheated conservatory helps to protect them from frost." In reference to your question as to "how that statement agrees with the fact that plants outdoors suffer more from frost in a damp position than a dry one," our reply is that we fail to perceive any agreement between the two propositions. Heat is, no doubt, evolved in the freezing of water, though in the case of a "pan" of it, it is infinitesimal and inappreciable. But what after the water is frozen? You will then agree, we think, that the plants will be frozen, too, if the temperature continues falling.

Transplanting Fruit Trees (W.).—Trees of the age and size you name are best moved as early in autumn as is safe, which is when the leaves are generally falling and part readily from the trees. The ground is warmer then than in spring, and the soil in better working order; besides, the weather is moist, so that the trees do not experience any great loss from evaporation. When planting is done in February or in early March the ground is cold and often wet, and March very often proves dry, in which case the trees have their vitality impaired through the loss consequent on evaporation, and make late and weak growths. With large and valuable trees every care should be taken in their removal, choosing the best time of year, which unquestionably is autumn, and that we strongly advise in your case. Young and small trees may safely be transplanted in spring, but all are best moved as soon after the leaves fall as practicable. We have had some unpleasant experience in moving large trees late in the season through a dry and windy March following. By autumn planting the soil gets well settled about the roots, and with the swelling buds in spring fresh roots are produced freely.

Seeds (R.).—You may safely purchase seeds from a warmer climate than your own. The better the soil for sustaining healthy growth, and the finer the summer for maturing it, the better are seeds both for the farm and the garden. Potatoes are not seeds, but tubers, seed being gathered from the berries of the plant. We do not know why Scotch Potatoes should be regarded as better than south of England Potatoes for planting, except on

the hypothesis that tubers which ripen early in the south start growing in the winter and the first growths have to be rubbed off, the succeeding growths being consequently weakened; whereas tubers ripening late in the north may not grow so soon, and their whole strength be conserved till planting. Possibly some of our readers may have a little to say on this subject.

Tennis Court (S. F.).—As the ground is very poor you could not do better than pare off the turf as you propose, mixing manure liberally with the top spit of soil. If you could stir the ground two spits deep it would be an advantage. Do not, however, bring any bad soil to the surface, but merely loosen it, and enrich the surface soil. If the soil be heavy you may mix a 3-inch thickness of old mortar rubbish with the top spit, which would not only make it drier but improve the texture of the grass. The ashes may be mixed with the bottom spit, which, by making it porous, would be advantageous in respect of keeping the ground drier and encouraging the deeper rooting of the grass. It will not answer to place a layer of ashes and other rough stuff near the surface with a view to raising and keeping it dry, for it would "burn" in summer, and frustrate the endeavour to form a close, velvety, elastic lawn. To insure a lawn fit to play upon by June by all means relay the turf if it be good. Whilst the turf is off be careful to remove from it the roots of such plants as Daisies, Plantain, &c. Be careful also to stir the ground to an uniform depth so as to insure its settling evenly, a little extra pains in preparing the ground, and laying the turf being well rewarded. Top-dress with well decayed manure as soon as the turf is laid and beat it down. The earlier it is done after this the better. If the grass be thin sow with grass seeds early in April after the manure has been brushed in, raking over lightly after sowing, then rolling the whole well. The lawn mower should not be used early and set low so as to shave the lawn closely at first. It is better to let the grass from seed grow somewhat freely, and first "run it over" with a very sharp scythe.

COVENT GARDEN MARKET.—FEBRUARY 2ND.

MARKET quiet. Grapes making better prices, as also good samples of home grown Apples.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples	1	0	5	0	Melon	0	0	0	0
" Nova Scotia and					Oranges	100	6	0	12
Canada, per barrel	10	0	13	0	Peaches	per doz.	0	0	0
Cherries	1	0	0	0	Pears	dozen	1	0	2
Cobs	100	lb.	60	0	Pine Apples English	lb.	1	6	2
Figs	dozen	0	0	0	Plums	1	0	2	0
Grapes	lb.	1	6	3	St. Michael Pines	each	2	0	5
Lemons	case	10	0	15	Strawberries ..	per lb.	0	0	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes	dozen	1	0	0	Lettuce	dozen	1	0	1
Asparagus	bundle	0	0	0	Musbrooms	punnet	0	6	1
Beans, Kidney ..	per lb	0	6	1	Mustard and Cress	punnet	0	2	0
Beet, Red	dozen	1	0	2	Onions	bunch	0	3	0
Broccoli	dozen	0	0	0	Parsley	dozen bunches	2	0	3
Brussels Sprouts	1	sieve	2	0	Parsnips	dozen	1	0	2
Cabbage	dozen	1	6	0	Potatoes	cwt.	4	0	5
Capicums	100	1	6	2	" Kidney	cwt.	4	0	5
Carrots	bunch	0	4	0	Rhubarb	bundle	0	2	0
Cauliflowers ..	dozen	3	0	4	Salsify	bundle	1	0	1
Celery	bundle	1	6	2	Scorzonera ..	bundle	1	6	0
Coleworts	doz. bunches	2	0	4	Seakale	per basket	1	6	2
Cucumbers	each	0	8	0	Sballots	lb.	0	3	0
Endive	dozen	1	0	2	Spinach	bushel	3	0	4
Herbs	bunch	0	2	0	Tomatoes	lb.	0	6	1
Leeks	bunch	0	3	0	Turnips	bunch	0	4	0

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.
Aralia Sieboldi ..	dozen	9	0	18	Ficus elastica ..	each	1	6	7
Arbor vitae (golden)	dozen	6	0	9	Fuchsia	per dozen	0	0	0
" (common)	dozen	6	0	12	Foliage Plants, var.	each	2	0	10
Azalea	per dozen	24	0	36	Hyacinths	per dozen	6	9	0
Bedding Plants, var.	doz.	0	0	0	Hydrangea	per dozen	0	0	0
Begonias	dozen	4	0	9	Ivy Geraniums ..	per dozen	0	0	0
Cineraria	per dozen	9	0	12	Lilium anatum ..	per doz.	0	0	0
Cyclamen	dozen	12	0	24	Lilies Valley ..	dozen	13	0	24
Cyperus	dozen	4	0	12	Lobelia	per dozen	0	0	0
Dracena terminalis	dozen	30	0	60	Marguerite Daisy	dozen	6	0	12
" viridis	dozen	12	0	24	Myrtles	dozen	6	0	12
Erica, various ..	dozen	9	0	12	Narciss (various)	dozen	12	0	15
" byemalis	per dozen	12	0	24	Palms, in var. ..	each	2	6	21
" gracilis	per dozen	0	0	0	Pelargoniums, scarlet	doz.	6	0	9
Euonymus, in var.	dozen	6	0	18	Primula sisensis	per doz.	4	0	6
Evergreens, in var.	dozen	6	0	24	Solanums	per doz.	9	0	12
Ferns, in variety	dozen	4	0	18	Tulips	per doz. pots	6	0	9

CUT FLOWERS.

	s.	d.	s.	d.		s.	d.	s.	d.
Abutilons	12 bunches	2	0	4	Lily of the Valley, 12	sprays	0	9	1
Arum Lilies	12 bunches	0	0	6	Marguerites	12 bunches	2	0	6
Azalea	12 bunches	0	6	1	Mignonette	12 bunches	4	0	6
Bouvardias	per bunch	0	6	1	Narciss, Paper-white, bunch	0	4	0	6
Camellias	12 bunches	2	0	4	" White, English, bunch	1	3	1	6
Carnations	12 bunches	1	0	3	Pelargoniums, per 12	trusses	0	9	1
"	12 bunches	0	0	0	"	scarlet, 12 trusses	0	6	1
Cbrysanthemums	12 bunches	0	0	0	Roses	12 bunches	0	0	0
"	12 bunches	0	0	0	" (indoor)	per dozen	1	0	2
Cornflower	12 bunches	0	0	0	" Tea	dozen	2	0	4
Cyclamen	12 bunches	0	4	0	" red (French) ..	dozen	2	6	3
Dahlias	12 bunches	0	0	0	Parma Violets (French)	6	6	7	0
Epiphyllum	doz. bunches	0	6	0	Poinsettia	12 bunches	4	0	6
Encubis	per dozen	4	0	6	Primula (single) ..	per bunch	0	4	0
Gardenias	12 bunches	12	0	24	" (double)	per bunch	1	0	1
Hyacinths, Roman, 12	sprays	1	0	1	Stocks, various ..	12 bunches	0	0	0
"	12 bunches	4	0	6	Tropeolum	12 bunches	1	6	2
Lapageria, white, 12	bunches	2	0	4	Tuberose	12 bunches	2	0	4
Lapageria, red	12 bunches	1	0	2	Tulips	doz. bunches	0	9	1
" longiflorum, 12 blms.	0	0	0	0	Violets	12 bunches	1	6	2
Lilac (white), French, bunch	6	0	8	0	" Czar, French, per bunch	2	0	3	6



SOIL LESSONS.

VERY wide is the difference of opinion of farmers in what we may aptly term the old and new schools upon many matters affecting their calling, but there is very little difference of opinion concerning drainage. All sensible men acknowledge its importance, but the manner of doing it is but too often a matter of mere opinion and not an outcome of mature experience. It is for this reason that we have touched upon the most important points of ordinary drainage, and have striven to explain why we drain. Four feet deep and 30 feet apart was at one time insisted upon by our leading authorities as the only safe depth and distance apart for land drains. But experience has shown that we may modify these figures with advantage, and that in certain cases 2 to 3 feet deep and from 15 to 20 feet apart answers best. There can be no doubt that when new drains act well the soil shrinks and cracks—not in the same way as from drought, but generally in so microscopic a manner as to be invisible to the naked eye. There, however, are the cracks, and we may therefore be assured that air enters the soil sooner or later after the drains are made, that a change for the better follows, but the change will be very slow indeed if porosity is not promoted by other means,

Before draining is taken in hand at all, each field or plot of land should be carefully examined, and due thought given to its special requirements. It is impossible to lay down rules for general guidance, rather would we insist upon the importance of relieving the land of superfluous water and explain why it should be done. We have done so, and have given one or two examples of our own practice, which has been somewhat extensive. Results have invariably proved satisfactory when the work was well done, but we cannot claim to have been so fortunate as to have avoided faulty work altogether. Just as the strength of a chain is affected by a weak link, so is the action of a drain by a badly laid pipe. It is for this reason that we like to test each drain with water before the trench is refilled, and it is quite worth while doing so if we have to cart water to the upper end of the drains. For all ordinary work 2-inch pipes are large enough. Elaborate calculations have been made as to the size of pipes, but if we have to treat very wet land we still keep to 2-inch pipes for all branch drains, only we take care to make enough drains to carry off the water quickly and well.

Practical knowledge and common sense enable the ordinary farmer to dispense with scientific calculations in this matter, and it is our aim to enable him to do so. By all means let science play its part, but let it be science in conjunction with practice, and very much so say we. Depend upon it the stirring active man is not wont to take things for granted, he wants to know and will know the reason why his land requires drains, and when he is convinced of the necessity of drainage, be very sure it will be done in a thorough manner. He may know nothing of science, but anything that applies to his understanding will arrest his attention, and be well "thought out" before he has done with it. We have recently purchased a farm of 100 acres to add to what we may term the home estate. The late owner, as he acknowledged, at one time had plenty of money, but he was naturally of a somewhat easy-going disposition and gave no thought to making a provision for the proverbial rainy day, which under the depression eventually fell upon him with such scathing power that he, in common with many other farmers of the old school, became bankrupt. He was a good master, a good neighbour, highly respectable, and undoubtedly

an honest man. But he was not energetic, he could not rise to an emergency at once, and though a great reader he was not a deep thinker, and so when bad times fell upon him he failed to realise the gravity of his position, and, like so many more, he struggled on hoping for better times—and eventually was ruined. Now the soil of his farm was of such excellent staple, and the situation was so advantageous for the disposal of farm produce, that we actually had six applicants for this farm immediately after it became known that we had purchased it. We have let it to a man who already holds two farms upon the same estate, and he has already made his mark upon the land. Energetic action has worthily replaced drowsy sluggishness, the soil is being cultivated thoroughly at last, and we have no fear but that he will do something more than pay his way. We have found him a remarkably "keen hand;" nothing at all calculated to promote his interest is overlooked, the covenants of his new agreement have had to undergo the scrutiny of a shrewd, able man, and we have willingly made one or two alterations in them, for he is precisely one of those men who have intelligence, energy, and ability to rise to an emergency, grave even as that which is upon us, to grapple with the difficulties arising out of it, and to overcome them.

(To be continued.)

WORK ON THE HOME FARM.

Ploughing is now being pushed on briskly, and the crumbling furrows show how deeply the long frost laid its icy grasp upon the land. Glad should we have been had it been possible to finish our ploughing before winter, but that was impossible, simply because we have so much of it. No doubt many an energetic man holding a farm well within his means was able to clean and plough his stubbles immediately after harvest, but our difficulties with poor foul land are so heavy that we cannot always get through our work so soon as we wish to do. The appearance of winter corn is satisfactory, and our prospects for food for the flock are excellent. We have the ewe flocks on grass reserved specially for them, and there is such an abundance of it that they refuse to touch the hay. Crushed corn and roots are eaten greedily, but they are by no means eager after chaff. Our shepherd upon the home farm has recently lost four ewes; two of them died from causes which we knew were unavoidable, but the other two were said to be owing to inflammation, and the carcasses were disposed of to a dealer before we were told of our loss. We at once insisted upon being told at once of any sickness among the sheep, and that none of them should be sent away till we had seen them. A ewe heavy in lamb is liable to become cast—i.e., to roll over upon its back and be unable to get up. If left in this position for an hour it may die, and in point of fact does die. We found one in such a position lately; it was struggling hard yet could not get up. The shepherd was not there, and had we not pushed the sheep over upon its legs it would soon have been dead, and we should probably have heard of another loss from "inflammation." We at once found the shepherd, and had to insist upon close and constant attention to his charge, nor would we listen to any attempt at excuse of his but too evident negligence. The loss of every pregnant ewe is equivalent to a money value of £3, and we shall certainly be much among the sheep till the lambing is over. At the time of writing this note the weather is soft and spring-like, and is certainly most favourable for both lambs and sheep.

METEOROLOGICAL OBSERVATIONS. CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain
	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1887. January.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
Sunday 23	30.515	40.0	37.9	N.	37.2	40.8	39.8	43.7	37.4	—
Monday 24	30.285	35.7	34.6	S.E.	37.8	38.3	35.1	42.2	34.8	—
Tuesday 25	30.221	39.2	38.6	S.E.	37.3	48.9	35.4	65.4	83.3	—
Wednesday 26	30.321	39.9	38.7	E.	37.7	49.7	35.1	68.3	27.8	—
Thursday 27	30.386	36.5	36.3	Calm	37.2	41.2	32.4	42.1	28.1	—
Friday 28	30.381	42.6	42.1	S.W.	37.2	49.1	32.4	56.	29.0	—
Saturday 29	30.495	47.6	46.6	S.W.	38.7	48.7	41.9	53.1	37.9	—
	30.372	40.2	39.3		37.6	45.2	36.0	53.1	32.6	—

REMARKS.

23rd.—Overcast morning, clear afternoon.
24th.—Slight fog in morning, cloudy all day.
25th.—Cloudy early, fair day, with a moderate amount of sunshine.
26th.—Dull early, fine pleasant day.
27th.—Dense fog all the morning and evening, clearing a little in afternoon.
28th.—Fog early, fine day.
29th.—Fair throughout, hot dull.
A rainless week, with very little sunshine and much fog. Temperature 5° above the of the preceding week, and nearly 3° above the average.—G. J. SYMONS.



COMING EVENTS

10	TH	Royal Society at 4.30 P.M.
11	F	Quekett Club at 8 P.M.
12	S	Royal Botanic Society at 3.45 P.M.
13	SUN	SEXAGESIMA.
14	M	Horticultural Benefit Society, Annual Meeting Caledonian Hotel.
15	TU	
16	W	Society of Arts at 8 P.M.

THE ROYAL HORTICULTURAL SOCIETY.

AFTER the unfortunate failure of the Society's provincial Show at Liverpool and the financial loss sustained thereby, a cheering balance sheet was out of the question. It was not, however, perhaps generally anticipated that the deficit on the year's transactions would amount to nearly £1600. Yet such is the fact, as is clearly stated in the auditors' report that is published in another column. The only pleasant sentence in that report is the meed of praise accorded to Mr. Dick for the "perfect manner" in which he has kept the accounts of the Society. That is very high praise indeed, and if it were not merited it would not have been accorded by the experienced scrutineers whose names are appended to the document. Mr. Dick is an old and experienced official, and we are pleased to see his diligence and care so emphatically acknowledged, for, having the Society's interests deeply at heart, his task must have been the reverse of exhilarating.

It seems that the most formidable item in reducing the revenue of the year is the £850 as representing the subscriptions of the large number of Fellows who resigned because their tickets, which admitted to the Indian and Colonial Exhibition, were made non-transferable. This was done entirely by the Royal Commissioners, as landlords of the property, the Council of the Royal Horticultural Society having no voice in the matter. In this respect the Society has been the victim of an alliance that, however, in some other respects might have been advantageous. Whether the Exhibition Committee or Commissioners were substantially benefited by the withdrawal of the privilege is perhaps a moot question; but it is quite certain the Society was injured, and that during a signally unfortunate season.

Still we would not unduly magnify the importance of those resignations for it must be conceded, we think, that persons who withdrew their support from the Society because they could not lend their tickets to friends and servants for visiting the Colonial, &c., Exhibition, could not be in very deep sympathy with the Royal Horticultural Society and its work. At best they were not supporters to be depended on, and if they had not resigned last year they would probably have taken their departure this in the absence of any great sensation in the gardens to which they could have access. "Fellows" of that kind are not such as can be relied on for the steady sustenance of the Society, and it is a question if "local support" in the past has not been purchased at too high a price.

It has been the alliance of the Royal Horticultural Society with the world of fashion, which it has had to share in feeding, that has crippled its power for pro-

moting its legitimate work, and has thereby alienated those who ought to be its natural supporters—horticulturists of various grades all over the country. It is free from all binding alliances now, having just had an escape that not a few persons who are interested in its welfare will deem fortunate rather than otherwise, and this brings us to consider the general report of the Council, apart from the auditors' report above noticed.

The report opens with the recital of a scheme for joining hands, so to speak, with the Corporation of the Royal Albert Hall on the basis indicated on another page. The "preliminary negotiations" referred to had for their object, no doubt, the securing for the Society on easy terms the necessary structural conveniences for the transaction of its business, and it was not unnaturally thought that there was nothing particularly incongruous in the association of music and flowers; indeed, this association is formally established in Belgium, and we believe in several instances both Horticultural and Harmonic Societies have been strengthened by the amalgamation. The proposition in question was therefore not quite visionary in its inception; but we are not able to withhold the expression of our opinion that the embodiment of the scheme in the report was not called for under existing circumstances. We have reason to believe that the negotiations entered into between the Council of the Royal Horticultural Society and that of the Royal Albert Hall Corporation fell through, in consequence of the latter having failed to get powers to enable them to obtain possession of the Conservatory and the upper part of the garden. It would have been better to have promptly expunged all the matter relating to the scheme, as its publication without comment or explanation tends to mislead. Instead of the paragraphs on that subject being "taken as read," they should have been taken as wiped out.

It is gratifying to find that in many respects the work of the Society is regarded as satisfactory, and we have not a doubt correctly so. As worthy of particular mention are the special committees and conferences, the Chiswick trials, the fortnightly meetings, the special shows, and the winning of a second prize for an essay by one of the under gardeners, whose name, however, is withheld. The distribution of ordinary seeds and plants is to be discontinued, and not, we think, before time, as numbers of packets could be purchased for a few pence from seedsmen, the distribution of what is rare and not readily obtainable being more in consonance with the Society's functions.

We are told in the report that 230 first-class certificates to plants and flowers were submitted for adjudication during the year; but if, as we are informed, those members of the committees who refrain from voting are not counted as negatives, we do not hesitate saying that a different method of procedure is urgently needed, as it is evident that by the policy of individual self-effacement of members plants may be officially stamped as superior by a minority of votes. Possibly more may be heard on this subject, for if the practice indicated is common the credit of the Society and the value of its certificates must be seriously impaired sooner or later.

The future of the Society is not easy to forecast. That it has a future there can be no doubt. It will surmount present difficulties. A home of its own on its own freehold is the great desideratum. Until this is forthcoming its head-quarters can probably continue at South Kensington on the easy terms of freedom from payment of rent. The difficulty is the acquirement of a perma-

nent site. Is it too much to hope that the Commissioners, who hold the land for public purposes, will grant a Jubilee gift to the Society that has done so much on the estate and for the property adjoining? A grant was made for the School of Music and the Royal Albert Hall. Perhaps the turn of the Royal Horticultural Society may come next, and, a site assured, a building would follow.

But cannot something be done this year to reduce the financial deficit? If those who have the power have the will to represent the horticultural industry by a great honorary commemorative Jubilee Exhibition in the conservatory and arcades, it would be a practical method of displaying sympathy with the Society, esteem for the Sovereign, and would bring the resources of cultivation effectively before the public. Then there remain for consideration special exhibitions or congresses—say of Rhododendrons, Palms and Ferns, Roses, Grapes, with other things that will suggest themselves if any such programme should be entertained by the authorities and by the great body of cultivators who could so well carry it out.

ROSE-GROWING FOR BEGINNERS.

(Continued from page 85.)

TRANSPLANTING ROSES.

THIS operation, which, if we wish to grow blooms up to exhibition standard, will require to be done every three or four years, may be carried out in a similar way to ordinary planting in the first instance, except that there will be more old thick roots to cut back than in the case of the young, or maiden plants as they are called. The soil should be loosened and the plants raised out of the ground with a fork; a spade should not be used, as it cuts away and so destroys the fibrous roots, which are to be preserved as much as possible. Large tap roots should be boldly cut back short, and when the soil has been renovated and improved the plants may be replanted as before. I expect some Rose growers will object to moving the plants every three years, and in cases where the natural soil is good, and one desires large trees, a longer interval might be allowed; but I would remind those who wish to object that I spoke of exhibition blooms, which cannot be cut from plants whose roots have been allowed to wander out of the reach of the stimulants and manure we wish to apply to them.

In planting or transplanting remember that the roots of plants naturally are always in the moist ground; their office is to draw up water and convey it into the branches. This action is always going on, summer and winter, so it is easy to see that if you dry the roots at all you interfere, for the time, with the life of the plants. Remember, therefore, in planting, always to keep the roots moist, and you will never get far wrong.

DISTANCE APART TO PLANT.

Where the wind and sun have free access, dwarf plants may be planted 1 foot apart in beds; in rows the same distance from plant to plant, but about 2 feet between the rows; near houses or large trees or plantations more room must be allowed. Standards and the larger growers among the dwarfs should not be placed quite so close together. Indeed standards in places where they grow luxuriantly should be at least 3 feet apart. In any case Roses do no good crowded, air and sun being necessary to ripen the wood.

WINTER TREATMENT.

All Roses, planted in the open are very much benefited by having a good mulching or layer of manure spread over the surface of the ground, which serves to protect the roots from severe frosts, supposing these occur, during the season. Their shoots should be firmly staked and tied, so that the winter storms shall not loosen the roots in the ground. Often have I seen Rose trees rocked to and fro in the wind until quite a hole was worked round the base of the stems. In wet weather this hole soon becomes filled with water, and in retentive soils will not benefit the roots. As before mentioned, all Rose trees, newly planted or otherwise, may have their shoots cut back to about 18 inches in the late autumn, which gives the wind less power over them.

In very exposed places dwarf Roses may be earthed up like Potatoes in the autumn, and though the frosts may kill the stems down to the soil, the fine plump buds round the base will burst forth in the spring and carry blooms that will astonish the beginner with their quality and size. Tea Roses in the open ground should

always be treated in this way, in addition to having their branches covered with dried fern or hay tied loosely round with bast or string. Even then these branches often perish in this neighbourhood, one reason being that the wood of Tea Roses rarely is ripe; in this, as in the former case, the earthing up gives the plant a double chance of surviving.

WHERE TO PLANT ROSES.

I remember at a flower show admiring a box of Roses I had staged earlier in the day. Here let me pause to warn beginners and others from expressing their opinions on the merits or otherwise—especially otherwise—of boxes of Roses they see at shows too freely while they are in close proximity to the aforesaid boxes, for the exhibitor as a rule hangs about and hovers round his exhibit much as a murderer is said to haunt the scene of his crime. As I stood there my attention was drawn to a lady and gentleman who were admiring the flowers. The lady was particularly loud and enthusiastic in her praises—"What loves! How superb! How lovely!" &c. When she had gone on like this for some time her husband spoke to me and addressed me by name. The lady immediately burst out with "Oh, Mr. G., however do you grow such lovely Roses? I would give anything if we could have them as fine as these. However do you do it?" Of course I told her. I explained that it was done mainly by means of manure, pruning knives, attention, and sunshine. She was much impressed, and finally it was agreed that I should go and inspect their Roses and say what was to be done. I went. Along the drive approaching the house were planted at intervals in the grass a lot of wretched sickly-looking standards with here and there on their poor puny branches an odd bloom about the size of a walnut, all round among the mixed borders, stuck in anywhere to live or die or drag out a miserable existence in ground literally filled with a network composed of the roots of large trees and small shrubs, Auebas, Yews, Laurels, and many others were the Roses. "Planted last year," the lady said, "and dying ever since," said I to myself. "We got them from so and so, but they have not been at all satisfactory; we shall not go there for any more." How often does this happen! An unfortunate nurseryman supplies good plants with the best intentions, and, then, in consequence of the neglect or ignorance of the very first principles of Rose-growing on the part of the buyer, he gets blamed without any reason. I say most emphatically that if the beginner intends to plant Roses in this way and in these situations he might just as well plant them in the coal hole or make a bonfire of them at once.

After that I was led away to what was called the rosery proper, a large square in the kitchen garden, where about a hundred trees were planted in rows. This looked more like business. "We planted these some years ago, when we first came to the house," the lady explained. "You have lived here a long, long time" thought I. "They are all very good varieties, but they do not seem to bloom very freely, and when they do bloom the flowers are so small. Now here is one plant, there are several of the same sort," indicating a very fine old plant, or, more properly, tree of the Manetti stock. "This never blooms. Can you tell me why?" I hastened to explain to her that the Manetti rarely bloomed in this country, and I further showed her how the inserted bud had long since perished, and that what was growing was only the stock, but I could see that she was rather dubious about it.

These Manettis appeared to be about the finest and most vigorous plants in the whole collection, the others were more or less debilitated, and required replacing badly. The Manetti flourishing in this way proves to me, that however short-lived it may be as a stock on which to grow other Roses—that it is short-lived I have proved over and over again to my own satisfaction—it lives and flourishes rarely as a bush on its own account. To return to the lady's garden. It appeared they rarely applied manure to these Roses or to those in the borders I spoke of—never. No wonder they did no good.

From this garden what a pleasure to pass to another not far away from it, where not the least pleasing thing to the eye of a gardener is a goodly heap of manure; where the standard Roses, placed singly in round beds on the lawn—not planted in the grass, where the roots must be starved—are the picture of health; where grand old trees of Gloire de Dijon are trained over wire arches, their shoots in many cases 12 feet long or more; where the dwarf Roses are planted in sunny positions in dozens, in beds, each variety to itself, properly pruned and manured, and attended to, and giving to the possessor of them, as I know they do, a very great deal of pleasure.

I am afraid I have wandered a little, but I thought a sketch of these two gardens would be instructive, and convey my meaning perhaps better than a more severe view of the subject. To sum up in a few words—light and air are absolutely necessary. Plant your Roses, therefore, where they will get as much sun and wind as

possible; where there is no wind there you will find the caterpillar, the green fly, mildew, and kindred abominations. Wind will do the Roses no harm, but in very exposed places shrubs should be planted so as to break the full force of the gales. Plant your Roses where the roots of trees cannot come to rob the soil of the manure you put in. They are best in beds by themselves. Whenever I see a Rose planted under trees or in a close place I always think I can imagine it, by its habit of growing under these circumstances, crying out as plainly as possible, "Give me air, give sunshine, or I die!"—D. GILMOUR, JUN.

(To be continued.)

GRAPES WITHOUT HEAT FOR THE MILLION.

(Continued from page 55.)

PRUNING.—It is best done shortly after the leaves have fallen. Some defer it until spring, alleging the frost acts disastrously on the cuts. That I have not observed, but when pruning is deferred until late spring there is danger of bleeding. It is certainly not wise to delay pruning until late, and it should not be done in frosty weather. The spur shoots may be cut to two eyes or buds, or, if they are plump, to one. Longer pruning will give larger bunches, but they will be looser, and have a larger percentage of stoneless small berries. If compact bunches cannot be obtained by close pruning practise long; but then we must take a shoot from near the base as well as the fruiting one, so as to displace the long shoot after the fruit is cut. It is a very excellent plan of rejuvenating the spurs—*i.e.*, when they get elongated and become enfeebled, but a better plan is to train in a young cane from the base, and when it has grown sufficiently cut out the old rod. This is easy; only select a shoot near the base of the rod to be displaced, train it up, cut it back to as many feet as it makes of ripened wood, and cut away the spurs to that length on the old rod. Continue this year by year until the young cane reaches the extent of the space with ripe wood, then cut the old rod away. The spur under good treatment will remain fruitful for many years. The other systems of training are pruned on the same lines. The spurs or shoots not being extensions are cut back to one or two buds; young canes or leaders to firm ripe wood with well developed eyes, they may be only a few joints long or they may be several feet. There is limit only as the ripe wood determines; but if we leave a cane 6 feet long and take eight bunches of fruit upon it we weaken the Vine as much again as if we only left 3 feet and took four bunches of Grapes. The consequence may be that we get double the weight of fruit one year at the expense of the next, as the eight shoots will be less strong and not have such plump eyes at their base as in the case of four shoots. The pruning may therefore be too long for the production of strong side shoots, yet that is also dependent on their cropping. An over-burdened Vine or shoot will never have well-developed base shoots.

DISBUDDING.—A number of eyes and shoots appear on Vines besides those we want, particularly on outdoor Vines. All not wanted are rubbed off when young. There is no fear of the Vines bleeding after they push the buds. Latent or other buds coming where not wanted cannot be rubbed off too soon, those on the spurs or extensions may be allowed to grow until the fruitful and best shows can be seen, then those growths not wanted can be rubbed off, and it should be persisted in right along, but very few growths make headway after the principal ones are well on their way.

TYING.—This requires care. The young shoots are brittle. If brought down or tied too short they will snap and the bunch of fruit be lost. Too hasty handling of the shoots will disturb them at the base. They want humouring. Tie them so as to insure an even spread of foliage, and allow plenty of space in the ties for the swelling of the shoots. This attended to from time to time is all that is required, as the less ties the better if only the growth is secured in proper position and the fruit made safe.

WATERING.—In March house and case Vines should have a thorough soaking of water, repeated if necessary so as to bring the borders into a thoroughly moist state. If tepid and coloured with manurial matter all the better. Those against walls with projecting copings or eaves may need a thorough soaking of water or the liquid. This can easily be ascertained by examination. If dry give a good soaking, and some tepid liquid will do no harm, only it must not be too strong. This will suffice until about the time of disbudding or after. When the Vines are in full leaf covered borders will need a thorough soaking every fortnight right up to colouring time. In dull weather it may be required less frequently, and in bright hot weather at shorter intervals. With the soil porous and the drainage good, it can hardly be overdone in the broiling hot days of June, July, and August. A fall of 2 inches of thunder rain in a day does more good than the same quantity falling in showers over a month. Soakings are wanted, not dribbets. Make

sure that the soil is in a thoroughly moist condition when the Grapes are colouring, and no further supply will be required. There must not, however, be any doubt, if there is give a soaking. Some people are so afraid of water that the Vines have to finish the Grapes in a Sahara-like soil. The Grapes shrivel even before they are matured, and no watering afterwards will ever restore their plumpness.

FEEDING.—When in full leafage the amount of water evaporated is enormous. It may seem fanciful, but I have an idea that the more food ascends with the water the more the Vines store up—*i.e.*, in bright weather as compared with simple waterings. With water only I have seen the foliage remain thin and get paler; with liquid manure I have noticed others get firmer and assume a darker hue, the wood and buds must be improved in structure and development, to say nothing of the benefit to the present crop. Weak supplies of liquid manure are invariably advised. Safety is everything, as an overdose would be injurious if not fatal. I find, however, that manuring is like watering. Pinches on the surface and often are not equal to one good mulching, and the same amount of manure in liquid form given at half a dozen times is not as valuable as when it is given all at once. The contents of the liquid manure tank poured on the border thick, and followed at once with a thorough soaking of water, is more potent than when the liquid is diluted with six times the water before applying it. The liquid is the drainings of dungyards. The cesspools that take urine only, or the slops from laundries are not safe. Three good soakings of liquid manure may be given—*viz.*, after the fruit is of thinning size, midway of the swelling, and when it is about to change colour. No liquid is so good as the drainings of the dungyard.

MULCHING.—Two inches in thickness of short loose manure kept moist is a great attraction to the roots, and if they work in it add a little fresh from time to time as it is reduced or washed in. It need only be used during growth, and when the last watering is given mulch with a few inches thickness of dry short litter. It keeps the moisture in the soil, prevents it cracking, and it is not wanted in the atmosphere. Outside and inside borders should in winter be covered with a few inches thickness of dry material as a protection to the roots from frost. With the roots safe the part above ground takes no harm in the most severe weather.

SURFACE DRESSINGS.—Mulchings of manure are outside the question in some places; besides, it is usual to give a winter surfacing. The loose surface being cleared away, an inch or two of fresh loam, containing about a twentieth of bonemeal, is given. It is excellent. There is soot about most places, also bones which can be dissolved with sulphuric acid, and clippings of hedges or other pruning which can be converted by burning into wood ashes. The last dry can be mixed with the pasty dissolved bones, and the soot added, making an artificial manure fit for anything, especially the Vine. The soot, dissolved bones, and wood ashes should be used in equal proportions by bulk. It may be applied at the rate of a peck per rod (30½ square yards) at the winter dressing to enrich the soil, and again when the Grapes are fairly swelling after thinning.

SYRINGING.—We want stout short-jointed wood and thick leathery foliage, which are not to be had in a close moist atmosphere and with foliage regularly syringed. In our case and house a well-moistened soil, damping the borders and all other surfaces except the Vine foliage in the morning and closing time, suffices from the Vines swelling their buds until flowering, when it is discontinued. Afterwards it is had recourse to until the Grapes are somewhat advanced in ripening. The house and case are sprinkled each evening with weak liquid manure. If care is taken to keep down dust an occasional washing is not necessary. If it be, use clear rain water only; and for cleansing, if anything of a parasitical nature needs a destroying agent, use clear rain water. If hard water is used it is sure to leave a sediment, and nothing disfigures Grapes so much. When the Grapes are advanced in ripening the syringe must be laid aside.—G. ABBEY.

(To be continued.)

HARD WATER v. BOILERS.

I DID not overlook the remarks on this subject by "A. W." (page 524 in last volume), but various causes have delayed my reply. Advice of any kind ought to be acceptable to me, especially seeing how fond I am of advising others, but I do object to my mentors taking it for granted that I am unacquainted with the most elementary rules of any science or practice upon which I happen to touch. Take the following for instance:—"It does not appear to him (meaning poor me) that the more hard water he allows to enter his boiler the greater the sediment or incrustation that become firmly attached to the inner surface." "A. W." further adds:—"When this deposit of saline matter occurs in a boiler it is very much injured by the increased heat of the surface exposed to the fire, and considerably more fuel will be consumed in raising the requisite heat to be transmitted to the various houses in order to keep up the desired temperature. Not only is there a waste in fuel, but in-

jury to the boiler, for the metal is certain to burn where the sediment is deposited, which results in the many failures and patches that Mr. Iggulden has to attach to the boilers under his charge." Now, I ask who should know more about this than those who have spent so many weary hours trying to rectify the breakdowns? It was a good opportunity for airing a little superficial knowledge, but I should have thanked him for some more practical hints. We well knew what caused the inerustation, &c.; how to avoid it is the difficulty we have to master. "Thinker's" suggestions that, failing soft water tanks, petroleum barrels be substituted for storing a convenient supply of soft water, no doubt would answer very well in a small way, but unless our whole system were overhauled and thoroughly put into sound order we should require a most imposing row of these same barrels.

In nearly every instance that a breakdown has occurred or repairs have been needed nearly the whole of the pipes had to be emptied, and as nearly 3000 gallons of water are needed to fill them, it will be readily understood why I consoled myself for having a good convenient supply of hard water at hand. Any method of storing soft water we might adopt would necessitate hand labour by pumps or otherwise in refilling the pipes, but the hard water reservoir is higher than the supply tank of the boiler, and being filled by horse power manual labour is dispensed with. Our case is, I hope, an isolated one, and I mentioned it in the first instance to illustrate what it falls to the lot of some few to have to contend with, as well as to confirm what has been previously advanced as to the possibility of patching some kinds of boilers. The next boiler I have put in here will have some provision made for frequent flushings, as it is only by this means shall we be long safe from breakdowns. Not only is our spring water very hard, but rain water stored in tanks soon becomes nearly as bad. Further, I ask, Is there no sediment in connection with soft water? I am of opinion there is; I could have proved it last winter in fact, but it certainly does not so rapidly injuriously affect a boiler. In this case much depends upon the circulation in the pipes, or whether the rise and fall is rapid or otherwise.

"A. W." justly concludes I am not much in favour of joints in hot-water pipes being packed with iron filings, and asks what I would substitute for the same, especially underground. He evidently considers he has asked an awkward question, but it ought to have occurred to him that if I did not believe in the rust joints above ground, owing to their liability to burst, I should still more dislike burying them in the mains, where they would be practically inaccessible at all times. Three or four different hot-water engineers have contributed to the work of heating our houses, and we have three distinct kinds of jointing. Some are packed with rope and rusted iron filings, others with roping and Vulcan cement, and the rest are what is known as expansion-jointed, indiarubber rings playing a prominent part in the latter. Every season several of the joints packed with iron filings burst, and that, too, in some where only put together about nine years. Tarred roping (for cheapness, I presume) being used with the Vulcan cement, this failed to set properly, the heat of the pipes mixing the tar with the cement, and "a weeping" joint follows. If new roping had been used the case might have been different; but as I have been told in confidence that the cement also varies considerably in quality, this packing will not be recommended by me. The remainder jointed with indiarubber rings has not given any trouble whatever, and that, too, during a period of close upon twenty years. These expansion-jointed pipes are rather cheaper, I believe, than the ordinary pipes, are very much more expeditiously put together, any ordinary labourer being competent to do most of the work, and should there be a leakage or crack there is no necessity to employ a mechanic and labourer for nearly half a day (or longer if you do not sharpen them up a bit) in cutting out, putting on a collar, and remaking the three joints incidental to each repair. These rings are not suitable for connecting near the boiler, and here the mixture of red lead, iron filings, and sal-ammoniac, as well as socket joints, is necessary. Not only should the mains be laid in chambers, so as not to come into contact with the surrounding soil or other material used for filling the trenches, but they should also be enclosed in loose felt. Unless this is done the radiation is unchecked, and the loss of heat complained of by "A. Scot," on page 29, is the consequence. A few of our main pipes are unavoidably exposed somewhat, and these, besides being felted over, have an outer covering of old canvas sacking, a stiff coat of paint tending to preserve this. Thus enclosed, there is no loss of heat whatever. Adversity is a good if not always an agreeable schoolmaster, and during the past six years I have gained a good many wrinkles that would not have been possible if in a situation where everything went so beautifully smooth as it appears to do with some of my critical contemporaries.—W. IGGULDEN.

THE HOLLYHOCK.

THOSE who are old enough to remember the great popularity of the Hollyhock from the year 1850 onwards for some years, and the great perfection of the spikes and individual blooms of those days, must often think with regret that the almost total extermination of that flower from the exhibition table as well as gardens was due to a fatal disease which attacked the Hollyhock generally and drove it out of cultivation. I well remember the surprise and admiration evoked by those grand varieties, White Globe (to which a first-class certificate was awarded by the National Floricultural Society in September, 1852), Glory of Cheshunt, Beauty of Cheshunt, and Lizzie, all of which received F.C.C.'s from the National in August, 1853. These were exhibited by Messrs. Paul & Son, Cheshunt, but were, I believe, raised by the late Mr.

Parsons; and this marked advance on existing varieties in size and quality, as well as in form and substance, and enlargement of the guard petals, were recognised with great satisfaction by Hollyhock growers. Mr. Parsons was a gentleman's gardener at Welwyn in Hertfordshire, and had taken the Hollyhock in hand; and Mr. William Paul, now the senior partner in the Waltham Cross nurseries, was then the junior partner in the old Cheshunt firm of A. Paul & Sons, saw these grand varieties and bought the stock. But the demand for first-class Hollyhocks, even at 7s. 6d. and 10s. 6d. per plant, was far in advance of the supply, and hard propagation, generally in heat, was resorted to, and this was going on from one generation of plants to the other. A disease, as insidious and universal as the Potato disease, caused the collapse of many a collection, and the Hollyhock was given up by many as a plant which could not further be managed.

In the summer of 1850 I became strongly impressed with a conviction that something should be done to check the very rapid introduction of worthless new varieties of the various classes of florist flowers, &c., annually introduced, and proposed the formation of a National Floricultural Society, before whose monthly or more frequent tribunals all seedlings should be sent. Such a society was soon felt to be a great want, and a strong Committee, of which Messrs. Turner, Keynes, G. W. Hoyle, C. J. Perry, W. Paul, John Salter, James Veitch, Richard Headly, E. Beck, and many others, with the late Mr. John Edwards as Hon. Secretary, and all the leading florists of the kingdom accepted the Society as a tribunal to be relied upon. The judges were the most eminent practical florists of the day, and the good work done by the Society was enormous, and it only ceased to exist when the same work was taken up by the Floral Committee of the Royal Horticultural Society.

The late John Edwards was an amateur florist, and a thoroughly practical cultivator, a great personal friend of such men as Charles Turner, Richard Headly, and our old florists, and energetic in his work as Secretary of the National Floricultural Society; and although the late George Glenny had published an annual garden almanac for some years, Mr. Edwards felt that there was ample room for another, and in December, 1852, his first "National Garden Almanac" was published, and I am now refreshing my memory by looking through the old National Almanac in order to be as accurate as I can in what I may further write.

Referring to Edwards' Garden Almanac for 1853, in an article on the Hollyhock, seventy-six varieties are described, so far as being tabled under columns, and in that year the late Mr. W. R. Bragg of Slough introduced Cream of the Valley and National at 10s. 6d. each; Charles Lidgard, Crimson King, and four others at 7s. 6d. each; and four others at 5s. each. The late Mr. R. B. Bireham, Hedenham Rosery, Bungay, a celebrated grower, advertised thirty of the very finest sorts in cultivation, including Parsons' Joan of Arc, Bireham's Pourpré de Tyre, Chater's Sulphur Queen, and Bireham's Yellow Model, all at 10s. 6d. each. This was a great year for the exhibition of new seedling Hollyhocks, thirty-seven new kinds receiving either first-class certificates or certificates of merit, or labels of commendation from the National Floricultural and other societies. Amongst these were those very fine varieties Beauty of Cheshunt, Charles Lidgard, Cream of the Valley, Glory, Isaac Walton, Lizzie, Model of Perfection, Pearl, Pillar of Beauty, Pourpré de Tyre, Safranot, Swansdown, Triumphant, and White Globe. Many old Hollyhock growers will remember those grand varieties, especially those sent out from Cheshunt. Mr. William Paul, who is happily still amongst us, published a little book about that time, 1853, "An Hour with the Hollyhock," which was then a Hollyhock grower's companion. In the National Almanac for 1856, in a paper on the Hollyhock, the Editor wrote—"Long may we be permitted to feast our eyes and revive our spirits by the contemplation of such a blaze of beauty as was gathered together into one bright constellation at the meeting of the Royal South London Floricultural Society held at the Cremorne Gardens, August 30th, 1855. The like was never seen or heard of before, no, not even in the memory of the 'oldest inhabitant.'" As regards the Hollyhock, that meeting was certainly without a parallel. Ninety spikes and 1000 cut flowers were staged for competition. Then follows the names and descriptions of nineteen new varieties raised by Messrs. Chater, Paul, Parsons, Roake, and Bireham, all raisers, the only one now living being Mr. William Paul. One hundred and twenty-three other varieties are also described, comprising the finest varieties then known, and in the Almanac for 1856 the late Mr. Bireham advertises fifty-nine selected varieties, including Mr. Paul's grand varieties—viz., Beauty of Cheshunt, Glory of Cheshunt, Lizzie, and White Globe. In the "National Garden Almanac" for 1857, in an editorial article on the new flowers of the past year, we quote "A few words on the Hollyhock, a flower which has advanced in the estimation of the public almost unprecedented. An exhibition of the Hollyhock must now become an annual institution."

In the 1857 Almanac fourteen new varieties are described, nine of them being the late Mr. Chater's seedlings, including Beauty of Walden and Walden Masterpiece, two remarkably fine varieties which were grown for years; and at the National Floricultural Society in this year twenty-three new varieties raised by Paul, Bireham, and Ward (the late Mr. Ward had then become a partner), Chater, Bowler, and Fellows received certificates; and that seventy new varieties are described for the first time, including Paul's El Dorado, then a grand variety. At this time the Hollyhock and Dahlia were indeed popular flowers, the latter still a popular autumn exhibition flower, and coming to the front again. Let us hope that the glories of the Hollyhock may again revive, for it

wants only careful crossing of any existing best varieties to get fine exhibition Hollyhocks again.

My old friend, Mr. John Downie, will recollect one in particular of the famous Bishop Auckland Exhibition, August, 1863, where he and I were often judges together, when the late Mr. Harry May of Bedale took the first prize for twenty-four splendid cut blooms, the winner of the second prize being the Rev. E. Hawke, afterwards Lord Hawke, well known also afterwards at the northern exhibitions by the latter title; Mr. May also taking the first prize for nine spikes. It was a wonderful display of Hollyhocks, and the competition was very keen indeed. Bishop Auckland, for a number of years, was a celebrated cut flower exhibitions, and Hollyhocks were in great favour until the fatal disease stamped them nearly out. There are hopeful signs of the Hollyhock being taken in hand again, for there are growers in the north of England who have already taken the flower up and exhibited good stands last autumn. The Scotch florists many years ago, from 1850 to a later period, grew the Hollyhock extensively and fully as well in every way as the English growers, and a few fine seedlings were raised, especially by Mr. John Laing, formerly of Dysart, and now of Forest Hill, London, and he could write a great deal about the Hollyhock if he liked, but the climate of the south of England was much more favourable for the ripening of seed than the more humid atmosphere of Scotland.

The Hollyhock is easily cultivated from seed sown this spring, and strong plants can be had for blooming the following year, but the plants should be wintered in a sheltered place. Purchased plants should be planted out in April in well dug and well manured soil, loamy soil suiting best, and mulching liberally through the summer with decayed manure and watering freely. I hope that growers of this plant may be tempted through your columns to give a list of any good named sorts now in cultivation, and any information which may lead to renewed interest in this fine old garden plant.—W. D.

LARGE GROS COLMAN GRAPES.

THE object of the original report was to ascertain whether any Grapes as large as that represented in Fig. 84 (December 23rd, 1886), had been seen before, and I should have been the reverse of sorry if even larger berries had been forthcoming. "D. B.," apparently without seeing my Gros Colman, takes upon himself to say that "he has this season seen many hundred bunches quite as large in berry," but raises his staff to knock mine down to the level of ordinary productions. Able judges have pronounced ours the finest on record, and it is only reasonable to suppose better samples would have been seen at Kingston had they been so plentiful as "D. B." would have us believe. I am aware that I have been somewhat brief in my replies, because the sound of one's own trumpet is not very sweet music. I have made the only admission required by confirming the original report. Our Gros Colmans are no myth, but realities. They have been before the public and appreciated, and I am thoroughly satisfied. The Vine is in perfect health, and quite as likely to produce as fine Grapes another season. I have taken the trouble to ascertain the number of 4-inch berries it would take to weigh 16 ozs., but cannot say how long it will take Mr. Stephen Castle to grow them.—J. H. GOODACRE.

[Mr. Goodacre is quite right in his statement that the berry was figured with the object of ascertaining if any larger had been grown, though he did not ask us to figure it. It is quite evident that further discussion now can have no substantial result, and it will be better to wait till next year, when the largest berries that can be sent to us by our correspondents shall be tested with the same weights and scales.]

TWO GOOD LATE-BLOOMING CHRYSANTHEMUMS.

As good varieties of Chrysanthemums which produce late flowers are not over-plentiful, when such are found they should receive every encouragement. Happily the variety Golden Gem sent out and exhibited by Mr. R. Owen of Maidenhead was considered so good that first-class certificates were awarded to it both at South Kensington and at the midwinter show held by the National Chrysanthemum Society. It is difficult to define to which section it belongs, the Japanese or the reflexed. It seems to be a cross between the two. However, that is of small importance; the quality of the variety as a late bloomer is the important point. It blooms very profusely, as its habit of growth is branching. The colour is a rich yellow, which deepens towards the centre, assuming an apricot tinge. Another good quality is it flowers freely in small pots under good cultivation. The other variety to which I refer is called Zephyr. It was sent to me under that name, but whether it is correct or not I cannot say. The National Societies' Catalogue describes Zephyr as an incurved variety, salmon red and yellow in colour, while the one we have under that name is a Japanese variety of medium size, having long thread-like petals of the palest sulphur, so remarkable in colour that I have not seen anything approaching it. In a natural manner the plant grows tall and blooms freely, but like many other good varieties does not produce shoots for cuttings plentifully, in fact it is very shy in this respect. At the present time, February 1st, it has blooms upon it which are very fair in quality. This speaks volumes for the variety here in the south of England so far.—E. MOLYNEUX.



CŒLOGYNE CRISTATA.

I CAN fully endorse all that "A. B." has advanced in his short note on the above. Ten years ago my employer brought a few pseudo-bulbs (not more than a dozen) from the north of England, small pieces torn from the sides of a large plant, without any soil and very few roots, but they made a very good start, flowering the following year, and each succeeding year has found them larger in size and with more flower spikes. The plant now fills an 18-inch flower pan, the pseudo-bulbs hanging over and nearly hiding the pan. This year there are fifty-one spikes, with an average of four flowers to a spike, and the foliage is very healthy. Six years ago my employer was so pleased with the progress it had made that he sent for the plant it was taken from, a large mass 18 inches by 12, which had not been divided for years, and was growing in a basket made of wire netting, from which we had to disengage the plant with a pair of pliers. This we divided into six divisions, the largest now filling an 18-inch pan and has twenty-six spikes, three more in 12-inch pans have forty spikes, and two smaller plants have eleven spikes—128 spikes in all, which, with an average of four flowers to a spike, gives over 500 flowers.

The plants are growing in an intermediate house, amongst other plants which one expects to find in a mixed stove. The temperature has been very low during the winter months, falling to 50° nearly every night, and some nights during very severe weather it has reached as low as 45°; in fact, during the rainy weather which we experienced in November and December, I was almost at my wit's end to know what to do with them. I knew they wanted water, but was afraid to give it to them for fear the flower spikes should decay. I lost over twenty from drip, the house being very flat, and the rain beat under the laps, but there are plenty left to make a good display. The sun scarcely shines on the house for three months in the year, so they have not had the most favourable position to grow in. They are potted in a compost of fibry peat with the earthy particles sifted out, a third of sphagnum, and nearly as much charcoal, with plenty of drainage at the bottom of the pans. They require an unlimited supply of water, with an occasional dose of weak liquid manure during the growing season, less as the pseudo-bulbs arrive at maturity, but they never ought to get dry at any time. Plenty of warmth in the summer with a liberal use of the syringe will do them no harm.—A. WHIBLEY, *Osborne House, Eastbourne*.

ODONTOGLOSSUM CERVANTESI.

THIS useful little Orchid is a great favourite with us, and we have a dozen plants now flowering profusely. Amongst these are several dis-



Fig. 17.—*Odontoglossum Cervantesi decorum*.

ting varieties, but one of the best closely resembles *O. Cervantesi decorum* (fig. 17). It is very symmetrical in form, the concentric brownish bars on the sepals and petals being clearly marked and contrasting well with the pure white ground. The cool house suits this plant admirably, and we find that they thrive best in small shallow pans, such as are frequently employed now for Orchids that do not require great root space.—C. R. S.

CALANTHES DEGENERATING.

THE failure of *Calanthes* during the past few years has not been confined to the inexperienced. I have observed that when extra strength has been developed and the pseudo-bulbs have attained an immense size they almost certainly fail as rapidly as they had been developed. Many reasons have been advanced for the failure; in some

instances it has been attributed to too much water in their early stages of growth, by others to imperfect maturation the previous season, and by others to disease. All of these causes are capable of bringing about unsatisfactory results; but it seems to be overlooked that these plants are as liable to degenerate as any others. It may be argued that they renew themselves annually like Potatoes, and that a degenerate state is impossible; but the latter under certain conditions will most assuredly decrease in both size and vigour, and the same remarks apply with equal force to *Calanthes*. In the culture of *Calanthes*, as well as many other plants, we often overlook the main issue in our attempt to outlive other practitioners in the development of large pseudo-bulbs and long spikes of bloom. For the time being we seem to forget—in fact, scarcely ever realise what the result may be, until failure overtakes the plants and they refuse to grow with the same vigour as formerly. Stimulants are very useful in their place as long as the plant can utilise them; but they become dangerous when they are supplied too strong or in too large quantities. Weak stimulants supplied every time the plant needs water may result for the time being in rapid development, but such treatment frequently ends in upsetting the energies of the plant, and decay, and in some instances death, follow. We have observed, that large pseudo-bulbs produced by such express systems of culture are very bad to keep in good condition during the resting season.

Another certain cause of degeneration in these plants is failure to thoroughly ripen and mature them. They may be grown practically without stimulants, but if they are overshadowed during the season of growth they lack that solidity essential to health and vigour the following season. In their latter stages of growth especially they must have abundance of light if firm well ripened pseudo-bulbs are required. This can be accomplished without subjecting them to the strong rays of the sun. That these plants will gradually decrease in size if they are not well ripened can be proved by anyone that will go to the trouble of retarding a batch as long as possible, so that they will flower late in the season after most of the plants are over. Grown for such a purpose most of the ripening process has to be done after or from the beginning of November. These plants will flower through January and well into the month of February, but they show in a very marked manner that they not only degenerate in size and vigour, but the colours of their flowers are very pale in comparison to those grown and ripened earlier in the season. The colour of the flowers betoken that they are a poor variety, which alone is the result of imperfect maturation.

Too much water in their early stages will result disastrously, and I am inclined to believe that a similar state of things may be brought about by too much in their later stages of growth. Degeneration may also be brought about by keeping the pseudo-bulbs in too low a temperature after they have flowered. Rather than run the risk of failure by injudicious methods of culture, it is wiser to be content with smaller but more solid well-matured pseudo-bulbs, which often result as satisfactorily, if not more so as regards flowers, than is the case with those whose energies have been destroyed by an unnatural system of forcing.—C. V. R.

WATERTIGHT ASHPITS.

I AM not in possession of the copies of the Journal in which the discussion of the above first takes place, but in reading Mr. Bardney's article, page 45, he appears to ignore the system of having water under the bars of a furnace for the preservation of the bars. I thought it was generally understood that where a furnace was subjected to a very strong heat that the water system was adopted principally for the preservation of the bars and to prevent them twisting, which they will often do when getting heated to a very high degree. If Mr. Bardney requires ocular proof of the system he can obtain it at the nearest gas works, and I have no doubt will be convinced of the practical importance of a water pit under the bars of a furnace. In gas furnaces the heat that the bars are subjected to is far stronger than is required in a horticultural boiler, and the water under the bars are considered to be necessary for their preservation, but I have no knowledge of its being there to aid combustion. If I remember rightly it is one of the printed rules for the guidance of the men in charge for the ashpits to be kept supplied with water. It is generally known that heated iron is put into water to harden it, after it has been subjected to the influence of a strong heat for the purpose of working it into the shape required, and in a similar manner does the vapour arising from the water in the ashpit help to keep the bars hardened.

With regard to tubular bars, I quite agree with Mr. Bardney that they are in all ways the most suitable for boilers that are used for the circulation of hot water. Scientific men tell us that combustion is more perfect when solid bars are in use. Yes; but we want something more than perfect combustion, we want something to convey in the most economical manner the effect of combustion to the places it is required, and I maintain that tubular bars are a great auxiliary to a boiler in the assistance of absorbing the heat given off from the fuel. We are told by some hot-water engineers that the tubular bars being so cold deaden the fire; that I admit, but the cause of this is that the bars have absorbed all the heat in contact with them, consequently the fire becomes dull until more live fuel is supplied. Solid bars are no doubt the best for steam boilers which are regularly attended and have only a small quantity of water to heat, but I am not quite confident on that point. I agree with Mr. Bardney and Mr. Stephen Castle in having the solid bars placed wider apart than is usually the practice. Since having charge of heating

apparatuses I have, when a change of boiler has been necessary, always had (with one exception) tubular bars attached, and when the boiler with solid bars was put down I had one of the bars kept out. I well remember once having charge of a fire that was detestable. To get the necessary amount of heat in the one structure that it was attached to was an impossibility, and my bothy companions informed me in very frosty weather it was necessary to sit up half the night to attend this fire and keep the frost out of the house. When I was so informed I replied, "Nonsense," as the boiler (a plain saddle) was quite large enough to do the work that was allotted to it; but when frost set in I found it was no nonsense, and I was not long in seeking a remedy. I made a close inspection of how the boiler was set, and found that seemed all right; but the bars were very thin and placed very close together. This I thought was the fault, and proceeded to the head gardener. Knowing that he was in great anxiety about this fire in bad weather, I thought he would not object in making some alterations. I suggested a new set of thicker bars placed further apart, a suggestion he at once agreed to. They were put in the next day, and he was delighted the same night when entering the conservatory to find the temperature at 55°, while it was 10° of frost outside. The first night after the new bars were in the fire was made up at ten o'clock, and at seven the next morning there was clear fire and the temperature of the conservatory nearly 50°, while the thermometer had registered 14° of frost outside. The gardener was highly pleased with the change, but not more than myself and others who had to take a share in the stoking. I may add that less fuel was consumed and a great deal less labour was necessary in the management of the fire when more air was admitted through the bars. I consider it a great mistake in having the bars too close, for the draught can easily be regulated by the means of a good fitting ashpit door and damper in the flue.

When a boiler is set (especially the saddle form), if the bars do not extend pretty close to the door of the furnace there should be a space of an inch or more between the dead plate and the furnace door, which will admit (when the ashpit door is opened) a current of air to pass over the fuel as well as through it, which will materially aid combustion and lessen the escape of smoke. When the furnace door is opened it admits the cold air directly on the boiler in too great a volume, which would lower the temperature too much for combustion properly. We have an illustration with oil lamps when the chimneys are off and the flame is surrounded with air how it will give off smoke, but when the chimney is placed on and admits of a small portion of air around the flame how much more clear it burns.—W. SIMPSON, *Knowsley Cottage*.

MR. BARDNEY was good enough (page 46) to refer to my remarks on the above subject, and maintains that had more air been admitted to the furnace the same end would have been accomplished, as the requisite quantity of oxygen would have been supplied. This I cannot agree to. Our usual practice has been to have ashpits that could not hold water, without intention on our part, but as we found them. Since having watertight ashpits we can now have more heat, the fire burns brightly with less trouble on our part, and the temperature is more easily maintained than before. We have also had no trouble with burnt and twisted bars since we applied water in the ashpits. I am not chemist enough to understand in what way vapour will affect hot iron. I know when cold it condenses moisture and rust forms that would soon destroy it. But what effect the oxygen has on the hot bars I am not competent to say. Our bars are as sound to all appearance as when put in, and without water in the ashpit we should have had them removed possibly two or three times. At the gashouse here, water under the bars has long been understood to be a great saving to the bars, and to insure better combustion of the fuel. Iron troughs to hold water are fitted into the ashpit. Over two years ago I had to supply bars for one of the furnaces. It seems the man in charge had allowed his ashpit to get dry and neglected to fill it with water. The results were the bars got burnt and twisted in all shapes; from inquiries made at the time they could not say when new bars had been put in, those already there had been for years. Elsewhere I inquired into the subject, and now we adopt the system with most satisfactory results.

With reference to anthracite coal, if permissible here, I concur with Mr. Bardney that it breaks up into small pieces when getting heated, and also rather slow in the early part of the day when temperatures are wanted to be raised quickly. A little mixture of coke reduces this fault to a minimum, and the advantages are no clinkering on the bars, a long lasting steady heat, less attention to adding fuel. We can now have 10° higher temperature in our Palm house towards morning in sharp weather than we could have, with no further call upon the man on duty than his usual hour (ten o'clock) to make up, and oftentimes was twelve to one o'clock before it was safe to do so.—ALBION.

BUCKLAND SWEETWATER GRAPE.

MR. BARKER, page 62, asks why good dishes of this Grape are passed over for dull-looking Foster's Seedling or little lumps of Duke of Buccleuch. My answer is that Buckland Sweetwater at its best is only very poor in flavour and begins to lose what little it has immediately it is ripe. One of our oldest exhibitors and best growers remarked that last year at one of our shows what a poor-flavoured Grape it was, and that it was scarcely worth growing. Some of the finest bunches of this variety I ever saw I had the opportunity of tasting at different times last season, and I can only say that they were very moderate indeed. On the other hand, as I have previously said, although Foster's is smaller

in berry, and, as Mr. Barker says, dull-looking, it has an agreeable and refreshing flavour, which decidedly improves with keeping. It is a first-class doer, and on the whole a most useful companion to the Hamburgh and Madresfield Court. Duke of Buccleuch, although it may have its failings, when it can be placed on the board in presentable form surely should be placed before Buckland Sweetwater, for when well ripened it has a flavour, I believe, peculiarly its own, and though it may not suit all palates, is to my taste much superior to Buckland Sweetwater, fine in bunch and general appearance though the latter may be. What a pity that Mrs. Pince does not colour quite perfectly, otherwise I have long thought that it must eventually prove one of our very best late Grapes, for in flavour and keeping qualities it is certainly first-rate; but when even at Longleat it does not quite colour I have not much hopes of seeing it generally finished elsewhere. Mr. Taylor, I think, expressed a strong hope that it would regain its vigour, which he believed had been impaired by excessive propagation; but we do not see very much signs of this at present. Possibly colour may be gained by grafting, but then flavour may be partially lost.—WM. JENKINS.



THE twenty-ninth Annual Exhibition of the GREAT YORK GALA AND HORTICULTURAL SOCIETY takes place in June next, when more than £600 is to be given in prizes. The schedule is a most liberal one, and we notice that in addition to the Society's ordinary Orchid prizes, further special prizes of £21, £15 15s., £10 10s., and £5 5s. are offered for sixteen Orchids. The trustees of the Veitch Memorial Fund give their Veitch Memorial Medal and £5 as a first prize for six varieties of fruit, and the Gala Society add good second, third, and fourth prizes. The Lord Mayor of York is the Chairman of the Committee, and Mr. John Wilson, 13, New Street, York, is the Secretary.

— A MEETING of Auricula growers and others interested in the formation of a SCOTTISH AURICULA AND PRIMULA SOCIETY will be held in the Bible Society's Rooms, 5, St. Andrew's Square, Edinburgh, at two o'clock on Saturday the 12th February, 1887, to take into consideration the desirability of holding an Auricula Exhibition. As a considerable number of gentlemen have intimated their intention, if it should be resolved to hold an exhibition, of sending plants either for competition or exhibition, and some for both, while others who cannot exhibit have offered subscriptions towards a guarantee fund, it is hoped there will be as large a gathering as possible. It is also desired those who cannot attend would send their opinions as to the most suitable date for holding the Exhibition to Mr. Wm. Straton, Annfield, Broughty Ferry.

— AT a meeting of the LINNEAN SOCIETY on Thursday, February 3rd, Dr. J. E. T. Aitchison read a most interesting paper on the Flora and Fauna of Northern Afghanistan, where he accompanied the Delimitation Survey Expedition in the capacity of naturalist. Large numbers of plants were collected, about 10,000 admirably preserved specimens having been brought to England, representing over 300 species, of which it is said that about 100 are new to science. Some important investigations were also made respecting the Asafoetida, Galbanum, and other plants employed in medicine. Dr. Aitchison's observations and discoveries were too numerous to be dealt with satisfactorily in one paper, as the botanical portion alone would have more than sufficed for the evening. There was a large attendance of Fellows, and in the discussion which followed, Sir Joseph Hooker, Mr. W. T. Thiselton Dyer, Mr. J. G. Baker, and others took part, all highly complimenting Dr. Aitchison on the results of his expedition.

— MR. OWEN has sent us from Maidenhead a truss containing four blooms of his GOLDEN GEM CHRYSANTHEMUM. The colour is as bright and clear, rich yellow, as we have at any time seen in a Chrysanthemum, and the stem is clothed with deep green foliage, as fresh as we usually see in November. We are informed the plant from which the truss was cut was, with others, raised from a cutting in April, the plants having been thrice topped, the last time during the first week in July, and grown and flowered in 48 and 32-size pots. Judging from the specimen before us this variety must be pronounced a great acquisition

for winter and early spring decoration. In character it appears intermediate between a reflexed and Japanese bloom, the florets being slightly recurved but not twisted. It was well shown at the National Chrysanthemum Society's January Exhibition this year.

— FLOWERS OF WILLIAMS' MAGENTA QUEEN PRIMULA have been sent for our inspection from the Holloway Nurseries. They are very fine indeed—large, well formed, of good substance; and the colour, rich magenta, showing as well under artificial light as in the day, renders this excellent Primula equally valuable for conservatory and for room decoration.

— A NEW FOE OF THE PEAR.—Last June Mr. Inchbald, F.L.S., received from a Sussex grower a sample of Pears that had been injuriously affected by the maggots of the small fly *Cecidomyia nigra*. These are yellowish white and legless; they lurk at the core of the young Pear, from which they throw off tunnels leading to the surface, Marie Louise was the variety chiefly attacked. When the fruit falls immature they enter the soil to appear as flies in the spring, at what date is unknown as yet.

— WE have received the following announcement:—"Died, on December 24th, 1886, at Clunes, Melbourne, Australia, where he had gone for the benefit of his health, ARCHIBALD SINCLAIR, aged forty-nine, for many years with Messrs. James Veitch & Sons, the Royal Exotie Nursery, Chelsea, and formerly at Patterdale Hall, Westmoreland." Mr. Sinclair was well known by many horticulturists, and was much respected.

— MR. J. DOUGLAS writes in reference to AURICULAS as follows:—"I have taken a little trouble to find correct references. The Scotch green-edge and my variety must be different. I now refer "Northern Amateur" to *Journal of Horticulture*, vol. xxviii., new series (1875) page 403, where it is described by me with the other seedlings sent by Campbell. I had the plant sent in the autumn of that year. John Cunningham, Brookfield Cottage, Kilbarchan, died at Paisley, March 28th, 1878, aged eighty. Three years subsequently Mr. Campbell gave me a small plant in exchange for something else, and made no conditions."

— A LAMENTABLE occurrence took place at Trentham on Friday last, by which the widow of the late Mr. Z. Stevens lost her life. Mrs. Stevens had been suffering from a complaint which required external application as well as internal remedies, and in the night she wished to be served with the draught. Her daughter, who occupied the same room with her and was in attendance upon her, unfortunately administered the contents of the wrong bottle, which it appears was of a poisonous nature, and Mrs. Stevens shortly afterwards died.

— MR. QUINTIN READ, late of Thornbury, Sheffield, has been appointed gardener to J. Craven, Esq., Whilton Lodge Daventry; and Mr. G. Abbey, late of Paxton Park, St. Neots, is now gardener to J. H. Sanders, Esq., Porter's Park, Shenley, Herts.

— A CORRESPONDENT sends us flowering specimens of *PITTOSPORUM UNDULATUM*, and remarks that "It is a very free-flowering plant, its value being considerably enhanced by the blossoms being produced without forcing at a season of the year when flowers are most welcome. These are white, bell-shaped, prettily reflexed, and are borne in bunches on the terminal shoots. They are, moreover, slightly fragrant, and the leaves of the plant, too, when bruised emit a distinctly balsamic odour." The plant is an old inhabitant of our greenhouses, and in some districts out of doors. There is also a rather pretty variegated form. The genus *Pittosporum* is especially interesting for its geographical distribution, spaces being found in Australia, Cape of Good Hope, Mauritius, China and Japan; *P. Tobira* from the last-named country being familiar to many gardeners.

— MR. C. PRINSEP, Hammerwick, sends the following note on THE BULB MITE—"Time will not allow me to write all I can on the above pest, but I hasten to warn growers against the use of bones in the compost. The creature is similar in structure to the cheese mite, with this difference, it is larger and more sluggish when taken from bulbs. Recently I found them of all ages and sizes on the *Vallota*, and I shall more fully write next week."

— WE are requested to state that a paper on the FLORISTS TULIP AND ITS CHARACTERISTICS, illustrated by diagrams, will be read at the

Chiswick Mutual Improvement Society, on March 4th, by Mr. Richard Dean.

— AT the ordinary meeting of the ROYAL METEOROLOGICAL SOCIETY, to be held at 25, Great George Street, Westminster, on Wednesday, the 16th inst., at 7 P.M., the discussion on the Hon. R. Abercromby's paper, "On the Identity of Cloud Forms all over the World; and on the General Principles by which their Indications must be Read," will be resumed, after which the following papers will be read:—"Remarks concerning the Nomenclature of Clouds for ordinary use," by Dr. H. H. Hildebrandsson, Hon. Mem. R. Met. Soc.; "Suggestions for an International Nomenclature of Clouds," by the Hon. Ralph Abercromby, F.R. Met. Soc.; "The Influence of Weather on the Proportion of Carbonic Acid in the Air of Plain and Mountains," by W. Marcet, M.D. F.R.S., F.R. Met. Soc., and A. Landriest. These papers will be in type before the meeting. Any Fellow wishing to take part in the discussion can obtain a copy on application to the Assistant Secretary.

— THERE was a good attendance of the members of the Wakefield Paxton Society at their usual weekly meeting at Councillor Lupton's recently. Mr. H. Oxley presided, and Councillor Howden was in the vice-chair. Mr. Alfred Wraith of St. John's was nominated as a member of the Society, which numbers about 200 members. The essayist was Mr. W. J. Ireland, head gardener to Baron St. Oswald of Nostell Priory, and his subject was BRITISH ORCHIDS. The large tables in the room were ornamented by an extensive and very beautiful display of exotic Orchids, and the quaint forms and varied tints of the lovely flowers were much admired both by professional and amateur gardeners. Messrs. L. Twigg & Son of the Northgate Nursery also exhibited a large box full of Lilies of the Valley. Mr. Oxley, in introducing Mr. Ireland, remarked that some of the Paxtonians had a very pleasant recollection of their last visit to the gardens and grounds at Nostell, and they hoped on some future occasion they would again have the pleasure of visiting the grounds. Mr. Ireland read a long, very interesting, and thoroughly practical paper, in which he stated that there are about 3500 species of British Orchids. Their cultivation is becoming better known, and they can be grown in a cold frame in summer and in a greenhouse in winter. He minutely described about forty, and fully explained how to propagate and treat them. Mr. Preston, St. John's Nursery, regretted that Mr. Ireland's essay had not been upon exotic Orchids, as they had such a magnificent collection of them on the table, and Mr. Ireland promised to give a paper on exotic Orchids on some future occasion. On the motion of Councillor Howden, seconded by Mr. Alan Willis, and supported by Mr. Oxley, the Chairman, a hearty vote of thanks was accorded to Mr. Ireland, who responded.

— AT the fortnightly meeting of THE BIRMINGHAM GARDENERS' SOCIETY, held on February 2nd, a handsome gold watch was presented to Mr. J. Hughes, the Secretary, in recognition of his having personally to a great extent collected about £80 towards a library fund, and the presentation was made by Mr. W. B. Latham on behalf of the subscribers. The preliminary meeting to consider the desirability of establishing such a Society was held on the 4th February, 1886, in the Theatre of the Midland Institute, the Mayor of Birmingham presiding, when 174 gardeners and nurserymen and amateur horticulturists attended, and the Society was formed, and now numbers close upon 300 members. A series of papers has already been read, followed by discussion, and some lectures have been delivered—viz., "The Mutual Relation of Plants and Insects;" "The Scientific Value of a Gardener's Experience;" "Leaves and Roots in their Relation to Air and Soils;" "Fifty Years of Horticulture, a Retrospect;" "Practice with Science;" "Plant Food, especially in reference to Artificial Manures;" "Mushroom Growing;" "Carnivorous Plants;" "The Culture of the Cattleya;" "The Chrysanthemum and Its Culture;" "Contrast and Harmony in Special Reference to Flowers;" and "The Grape Vine, Its History and Cultivation." The library is very popular with the members, and already contains 145 volumes, besides magazines and gardening papers. During the first six months there were seventy-two borrowers, the most sought-after works being those by Baines and Williams on "Stove and Greenhouse Plants;" Williams and Castle on "Orchids;" Burbidge on "The Chrysanthemum;" Burbidge's "Garden of the Sun," which is much sought after; Wright's "Mushroom Culture;" and Barron's "Vine Culture," the latter being especially popular. There is a balance of £6 7s. 7d. in hand on the general fund for

the year, and about £20 more in hand to be expended on books. Mr. Hughes, the Secretary, read a full report of the rise and history of the Society, embodying the above-named facts, and new members join at every meeting.

ROYAL HORTICULTURAL SOCIETY.

FEBRUARY 8TH.

THE meetings of the Committees in the morning, and the general annual meeting in the afternoon, induced a number of Fellows to attend, and the East Crush Room of the Royal Albert Hall was somewhat inconveniently crowded. There was a good display of plants and flowers, Primulas being especially well represented, but the exhibits could not be seen to such advantage as in the conservatory.

FRUIT COMMITTEE.—Present: T. Francis Rivers, Esq., in the chair, and Messrs. G. Bunyard, James Smith, W. Warren, W. Denning, J. Burnett, G. Norman, A. H. Pearson, J. Lee, S. Ford, C. Ross, T. J. Saltmarsh, T. B. Haywood, Joseph Fitt, Harry J. Veitch, J. Woodbridge, R. D. Blackmore, Phillip Crowley, and Dr. Robert Hogg.

Messrs. T. Rivers & Son, Sawbridgeworth, sent a collection of dessert Apples, including some fine samples, for which a vote of thanks was accorded. Mr. W. Taylor, Osborne Nursery, Hampton, showed several fruit trees in pots. Mr. W. Troughton, Church Street, Preston, exhibited fruits of a Cucumber named Troughton's Prolific, of moderate size, but even in shape and somewhat like Rollisson's Telegraph. Mr. C. Ross, Welford Park Gardens, had some fruits of his seedling Apple named Alice Eyre. Messrs. Saltmarsh & Co., Romford, showed samples of Apple Lord of the Manor, which are to be reserved until the meeting with the Bosom Apple. The fruits were conical, yellow, and solid. The Permanent Enamel Company, Pelly Road, Plaistow, Essex, exhibited their enamel labels, some with white letters on black, others white on blue. In the opinion of the Committee the labels are an improvement on those already in use of a similar make.

FLORAL COMMITTEE.—Present:—G. F. Wilson, Esq., in the chair, and Messrs. W. Wilkes, G. Maw, H. Bennett, Amos Perry, J. Walker, B. Wynne, R. Dean, W. Holmes, H. Herbst, W. H. Lowe, A. J. Lundy, J. Fraser, J. Dominy, C. Noble, H. M. Pollett, C. Pilcher, G. Paul, T. Baines, G. Duffield, J. O'Brien, and H. Ballantine.

Primulas, Daffodils, and Orchids were the chief features of the display, and comprised amongst them some handsome novelties or improved varieties.

Baron Schröder, The Dell, Egham (gardener, Mr. Ballantine), sent some very beautiful Orchid flowers, which excited much attention. They included spikes of the lovely varieties of *Lælia anceps* recently noticed, the superbly spotted *Odontoglossum Ballantineanum*, the shining yellow *Oncidium coronarium*, and a most distinct variety of *Vanda teres* named Aurora, the flowers large, the sepals nearly white, the petals having a faint blush tinge and curiously placed, so that they appeared nearly perpendicular to the axis of the flower. F. A. Philbrick, Esq., Q.C., Bickley (gardener, Mr. Heims), exhibited plants of the charming and peculiar *Saccolabium bellinum* (figured in this Journal, vol. x. page 147) with six flowers; it is one of the largest examples of the species in the country. A grand variety of *Phalaenopsis Stuartiana* was also shown, having a large panicle of flowers densely spotted with crimson at the lower part of the petals. *Phalaenopsis Casta* with extremely symmetrical flowers, the sepals and petals white, the lip veined in the centre, was another good plant, and the vote of thanks awarded was amply merited. F. G. Tautz, Esq., Studley House, Hammersmith (gardener, Mr. Cowley) sent a variety of *Cypripedium Boxallii* named atratum, in which the dorsal sepal was extremely darkly coloured. W. Vanner, Esq., Chislehurst (gardener, Mr. Robins), showed a plant of *Dendrobium Vannerianum*, which some have thought to be a hybrid between *D. moniliforme* and *D. Falconeri*. It has very slender pseudo-bulbs, and narrow tapering sepals and petals tipped with crimson, the lip similar in shape and also tipped with crimson. H. M. Pollett, Esq., Bickley, sent a plant of *Odontoglossum Marriottianum* (vote of thanks), which has white sepals and petals with a few small reddish dots on the former. Mr. B. S. Williams, Upper Holloway, had a plant of the new *Dendrobium Fychianum roseum*, which has the flowers distinctly tinted with a soft rosy hue. Mr. W. Bull, Chelsea, contributed an effective group of Orchids and Palms, the varieties of *Cattleya Trianae*, especially a delicately tinted one named Vesta, being very beautiful; *Cattleya amethystoglossa marmorata*, the yellow *Dendrobium speciosum*, *Coccygia cristata* and *Lemoineana*, *Masdevallias*, the soft yellow *Dendrobium luteolum*, and several good forms of *Odontoglossum Rossi majus* completed the group. Messrs. Masreel, Bros., Ghent, sent a collection of *Odontoglossum* flowers, and R. J. Meuniers, Esq., Camberwell (gardener, Mr. Simpkins), had a little group of Orchids (vote of thanks), chiefly *Cypripediums*, such as *C. insigne grandis*, *C. chloroneuron*, and *C. Sallieri*, with a well-grown plant of *Odontoglossum maculatum Donianum*, bearing nine spikes of four or five flowers each.

A large and choice collection of Daffodils and other hardy flowers secured for Mr. T. S. Ware of Tottenham a silver-gilt Banksian medal. The Daffodils comprised a selection of the most distinct varieties, a number of the bright red *Lachenalia pendula*, the fragrant *Freesia refracta alba*, the brightly coloured scarlet *Anemone fulgens*, several varieties of the early *Iris reticulata*, the bright blue *Chionodoxa Luciliae*, and several Primulas, of which the yellow *P. floribunda* and the mauve *P. puculiformis* were the most noticeable. A silver Banksian medal was also awarded to Messrs. Barr & Son, King Street, Covent Garden, for an interesting collection of Daffodils, with *Lachenalias*, *Freesias*, and several other flowers. The Daffodils comprised both double and single varieties, such as *obvallaris*, *odorus*, *papyraceus*, *Telamonius plenus*, *pallidus præcox*, and the beautiful poeticus ornatus. A similar award was gained by Messrs. Collins Bros. and Gabriel, Waterloo Bridge Road, for a group of Daffodils, Snowdrops (*Galanthus Elwesii*), *Freesias*, and other flowers. A vote of thanks was accorded to Mr. James, Farnham Royal, Slough, for fine blooms of *Cinerarias*, and some good Primulas, two of which were certificated. Messrs. J. Veitch

and Sons, Chelsea, showed extremely large flowers of *Cyclamen giganteum* and the handsome pure white *Primula Snowflake* (certificated). Mr. B. S. Williams had a richly coloured single *Primula*, named *Magenta Queen*, with large flowers. Messrs. Paul & Son, Cheshunt, sent a plant of *Iris Hystrix* with pretty flowers veined with blue on the whitish falls; and Mr. W. B. Hartland, Cork, was awarded a vote of thanks for a large trumpet *Daffodil*, named *Irish King*. A cultural commendation and vote of thanks were adjudged to Mr. W. Allan, gardener to Lord Suffield, Gunton Park, Norwich, for two baskets of double white and blue *Violets*, fine healthy plants, with large clear tinted flowers. Mr. W. Gordon, Twickenham, sent two *Camellias*, red and salmon coloured varieties.

A silver Banksian medal was awarded to Messrs. Carter & Co., High Holborn, for an extensive and meritorious display of *Primulas*, over 500 plants being staged, representing nineteen varieties of most diverse colours. Very noticeable were the following:—*Fern-leaf White*, single, fine flowers; *Prince of Wales*, double, salmon pink; *Holborn Blush*, single; *Fern-leaf Vermilion*, single, very bright; *White Improved*, single, large white flower; *Double Carmine*, bright and free; *Holborn Pearl*, a delicate soft tint; *Fern-leaf Elaine*, white flowers, dark stems and leafstalks; *Holborn Blue*, *Holborn Salmon*, *Holborn Carmine*, and numbers of others, all showing the quality of the strain.

CERTIFICATED PLANTS.

Odontoglossum crispum leopardinum (H. M. Pollett, Esq.).—A distinct variety, thought to partake of the *Hystrix* type, the petals deeply notched, and with the sepals densely spotted and blotched with rich reddish brown on a white ground, the lip having a yellow central crest.

Pachystoma Thomsonianum (W. Vanner, Esq.).—This *Orchid* has now been in cultivation some time, and we have seen better plants and varieties than the one certificated. The sepals and petals are narrow, white, the lip with a long central tapering lobe of a crimson purple hue.

Primula sinensis Purity (J. James, Slough).—A single *Fern-leaf* variety, with exceedingly large, substantial, and handsome pure white flowers.

Primula sinensis Brightness (J. James, Slough).—A double variety, with large, full, bright rich red flowers.

Primula sinensis Cannell's White Perfection (H. Cannell & Sons).—A superb single white variety, with very large flowers, and dark leaves of the *Fern-leaf* type, the dark stalks of which contrasted with the pure white flowers.

Primula sinensis Snowflake (J. Veitch & Sons).—A *Fern-leaf* variety with pure white single flowers of great substance. Very notable for its purity and good habit.

Lycaste plana Measuresiana (B. S. Williams).—A variety with uniform brown sepals, the petals white dotted with crimson, and the lip similar.

THE JUBILEE—A GARDENER'S ORPHANAGE.

WHILE all classes of society are meditating the above, and looking about for some tangible mode of memorialising our beloved Queen, the question comes to our community—What can we gardeners do? After hearing and reading many suggestions on the subject, it occurs to me that a home for the orphans of gardeners is very badly wanted in our country. Almost every other craft is represented by some such institution, but we have none. And when one sees earnest, hard-working gardeners struck down in the very hey-day of life, leaving their children totally unprovided for, it seems time that some such scheme should be set on foot.

A hearty united effort must be made by all if this is to be effected. No difference of opinion, either religious or otherwise, must be suffered to break in and mar the harmony of the whole, but all should work together in one great effort to make it a success. In my opinion an orphanage, with a good piece of land attached for cultivation, a school, &c., to hold fifty boys and girls or more, as the funds might permit, could be started if every gardener in the United Kingdom would contribute 5s., and every journeyman 2s. 6d. now, and continue the same yearly. If any of the fraternity can improve on my suggestion, I shall be most happy to fall in with their views; but I trust the matter may have due consideration.—C. PENNY, *The Gardens, Sandringham*.

AN HOUR IN A SEED WAREHOUSE.

It has been frequently remarked that one of the peculiar features of our great metropolis is the vast amount of business conducted in a quiet manner in offices and warehouses that strangers might pass unnoticed. In some of the most important commercial thoroughfares there is comparatively little to indicate the enormous industries they contain, the employment they furnish to hundreds, or even thousands of persons, and the world-wide importance of their productions or special wares. Examples of this could be cited by scores in numerous trades, but as a horticulturist we recently had a most striking instance brought prominently before our notice. When passing down the continuation of Oxford Street known as High Holborn, one of the main arteries of London, an invitation of long standing to visit Messrs. J. Carter & Co.'s seed offices and warehouses was remembered. The opportunity seemed a favourable one for a visitor who wished to form an idea of the mode in which such businesses are conducted, though it is also one in which the managers and their assistants have the least time to devote to visitors. Happily, however, we found that Mr. C. H. Sharman, the courteous Manager, had an hour to spare, and under his guidance a hurried but most interesting survey of a great establishment was quickly commenced.

The offices at 237 and 238, High Holborn, are chiefly occupied with the retail department of the business, but on one of the floors a museum of seeds, dried grasses, *Tobaccos*, models of vegetables, &c., has been formed, constituting a kind of conspectus of the products with which

the firm is concerned. Samples of the different new and leading varieties of garden vegetables can there be seen, mostly preserved by a patent process, showing accurately their distinctive forms and colours, and in several respects much preferable to models. In the case of Peas and Beans, the most minute differences being exactly indicated. Numerous illustrations with dried plants of the *Tobaccos* so successfully cultivated during the past season form another feature of interest. Various forms of Flax are included, showing the respective merits in quantity and quality of fibre from different districts, and the Hybrid Wheats, which are now being carefully fixed, have a case appropriated to them, in which the parents and progeny are seen side by side. All these and much more might occupy attention for some time, but the chief object of our visit—the warehouses—had yet to be seen.

The office occupies the same site as that taken by Mr. J. Carter when removing to Holborn exactly fifty years ago, but the warehouses are a few hundred yards farther east, and have not a frontage to the main road, so that strangers might pass quite near without the remotest knowledge of their existence. A huge building six or seven storeys high is there devoted to the storing and dispatch of seeds, several other detached buildings being similarly occupied, one which originally formed the sole warehouse of the firm now barely sufficing as a storehouse for *Radish* seed alone. The main building contains a series of offices and rooms almost bewildering in their number, and while the countless sacks of seeds occupying every available space would seem, to a person unacquainted with the trade, sufficient to supply the civilised world for a considerable period, yet the storing space does not suffice; and though some hundreds of tons are dispatched weekly, considerable quantities are always in store at the docks or elsewhere awaiting transference to head-quarters.

To give a detailed description of the various departments would occupy too much space, nor would it be possible from such a cursory glance as time permitted to do justice to them. Perhaps one of the most striking features is the floor where Peas are cleaned and sorted, especially as it affords a good example of several other departments. Great care is exercised with this important crop, the seeds as received being first placed in a machine that removes all waste, small and foreign seeds; then they are submitted to the sorters or pickers—women and girls—of which about 150 are employed in the height of the season. The Peas are placed on long benches, something like potting benches, with divisions at intervals. The women sit at these, and the seeds are passed singly but rapidly under their examination, every broken, damaged, or imperfect seed being cast on one side. The labour and expense necessitated by such a process as this can be readily imagined, but the object at which the firm aims—namely, providing a pure sample—amply repays the cost in many ways. Beans are dealt with similarly, as also are all crops that will admit of or which require such treatment. Machines of the most approved kinds are provided on the different floors for sifting or blowing, and some of these can be adapted to different seeds by employing sifters or trays with meshes proportioned to the size of the seeds to be cleaned, and it is surprising to see with what accuracy the work is performed. Much improvement has been effected in this way in recent years, and seed purchasers have now many advantages they did not formerly possess, though chiefly at the cost of the vendors.

Passing several floors filled with Grass and Clover seeds, threading our way along narrow passages left between the piles of sacks representing so many tons of seeds, we glance successively at the flower seed, wholesale, and dispatch offices, where busy scenes are presented to view. The whole building seems, indeed, like a vast hive, and that the “bees” are busy can be judged from the fact that they are now working until 9 P.M. each night. In the general office employment is also plentiful, for letters and orders received each morning vary from 800 to 1200, and as the majority of these require immediate attention, promptitude and a well arranged system are absolutely necessary to ensure the satisfactory despatch of such business. The post office on one of the floors is another important institution now the Parcel Post is in operation, and the “post mistress,” scarcely visible amongst the heaps of neat packages, cannot have much unoccupied time. For larger journeys packing cases of all kinds are seen up to the great metal tanks employed in the shipment of large seed orders to the tropics or the antipodes.

The analyst's office merits a word of notice, for there work of a most important character is performed. Every sample of seeds sent to the firm is there subjected to the examination of an expert, who reports upon their respective merits and the proportion of other seeds they contain. If this first report is considered satisfactory, a sample taken from the bulk is next examined, and usually a third report is necessary before the seeds are passed to the storehouse. By the aid of a microscope and a most delicate balance the smallest and lightest seeds can be thus tested, but the work requires considerable care.

Miscellaneous garden and farm seeds have much space devoted to them. A floor at the base is appropriated to Potatoes, where the same system of sorting, already noted, is followed, and below this still are “the vaults” for the safe, the books and the files of orders for a year past, arranged most systematically, and under the charge of an ancient custodian, who gives his whole time to this employment. But sufficient has been said to indicate the character of a modern seed warehouse, and it need only be added that we bid our genial guide farewell with a mixed feeling of surprise at the extent of the business, and admiration of the methodical manner in which it is conducted. For the first time we inspected a London seed warehouse, and it astonished—A STRANGER.

HYBRID TEA ROSES.

WHEN the first announcement was made of the "Pedigree Roses," so called, I was requested by the Editor of the Journal to visit them and give my report. That report was, on the whole, I think rather too favourable a one. I expressed my doubt as to their value as exhibition flowers, and thought the raiser was in too great a hurry to send them out; but I at the same time expressed my opinion of his work. "He is on the right track, and I am sure such an intelligent method of procedure must produce good results, and I think rosarians will wish him success in his painstaking endeavours to impart novelty to our Rose lists." Of this first batch of seedlings not one has proved to be an exhibition Rose, and even in gardens where Roses of all kinds are to be found, it is vain to look for any of them.

Before this time we had one Hybrid Tea Rose—"Cheshunt Hybrid," a Rose, which as a garden flower, had become most popular, and still retains its popularity in all parts of the world. A writer in the "Rosarian's Year Book for 1887," writes enthusiastically of the esteem in which it is held in the Antipodes. Since then other Roses have been brought out claiming a similar parentage, and in the case of La France, a Rose which had been long regarded as a H.P., was by its raiser, M. Guillot, taken out of that class and placed as a Hybrid Tea. It is evident, too, that an infusion of Tea blood had taken place in other Roses, and as most of the French growers did not artificially hybridise, it was extremely difficult to say what their parentage was; but no one can see blooms of Captain Christy, Jules Finger, and others, without feeling that they have a good admixture of Tea blood in them.

I think there are two things to be borne in mind with regard to artificial hybridising in order to modify our assent to the statement of the parentage of certain flowers. One is that where a number of flowers are so treated it requires more than ordinary care, not only in the principal but in all employed, that complete accuracy is observed. The hybridiser may be very certain as to what flowers he uses in his experiments, but it is not quite so certain that his assistants will afterwards be so accurate in taking care of the progeny as he has been in originating it; and the second, careful as he may have been, there may have been a hybridiser in the field before him, a bee or a moth may have upset all his plans, and while he is carefully nursing up his supposed progeny he may be really taking care of the babies which owe their origin to *Plusia gamma*, or a bumble or hive bee. Many a time we have seen this in flowers which have been brought before the Floral Committee of the Royal Horticultural Society. They are stated to have been hybrids between certain varieties, but no trace of the parentage is present. In many instances, too, the pollen is dropped without any intervention, and in the case of species it is reproduced, and in the case of varieties the tendency to variation may produce varieties which are in no way due to the hybridiser, but to the inherent tendency of the flowers to vary; and, therefore, when the parentage of certain Roses is questioned it is not necessary to impugn the good faith or veracity of the raiser, but to suppose that there has been a mistake or interference somewhere, and we are not bound to assume that a Rose is of necessity what a raiser states it to be.

When this question of Hybrid Teas was brought before the Committee of the National Rose Society two courses were strenuously advocated; one was to include them amongst the Teas and allow them to be so exhibited. This was very strenuously resisted, and ultimately it was decided that they were not to be so exhibited. Every year, I think, proves the wisdom of this resolution, for how utterly would our lovely stands of Teas have been spoiled by their introduction. Fancy the fresh Paul Neyron-like bloom of Her Majesty overshadowing such flowers as Rubens, Souvenir d'Elise, or Marie Van Houtte. The other idea was to make a separate class for them. This was also resisted. It was pointed out that it would be most difficult to define which were Hybrid Teas and which were not. It was asked whether we were to take the word of the raiser or go by the character of the plant and flowers; and, if so, who was to decide? Was, for instance, Captain Christy to be included amongst them as well as Reine Marie Henriette; and ultimately the idea was abandoned, and thus another source of confusion was avoided. After a time another question arose, As these Roses were said to be hybrid between an H.P. and a Tea, if they were not to be allowed to be exhibited amongst Teas, what was their proper place? In the case of Lady Mary Fitzwilliam it will be remembered that confusion arose from their double parentage. In a class for H.P.'s at Cardiff a stand was disqualified for containing it, as it was alleged it was not an H.P., while a few days afterwards two experienced judges awarded it the prize at Manchester for the best H.P. in the show. The Committee of the National Rose Society had again to consider the matter, and it was decided that all Hybrid Teas were to be shown amongst Hybrid Perpetuals, and no other conclusion seems possible.

We were startled the year before last by being informed that Mons. Guillot had raised a yellow Hybrid Perpetual. It proved to be one of those troublesome Hybrid Teas, and it might just as well have been so styled; but now we are confronted with another puzzle. The raiser of Lady Mary Fitzwilliam is not pleased because she is not scheduled amongst Teas, and her right to that position disputed. He has himself to blame in the first place, for in his published announcement for 1882 he advertises three distinct classes of Roses:—1, Teas: Princess of Wales; then 2, Hybrid Teas, amongst which he places Lady Mary Fitzwilliam; and 3, Hybrid Perpetuals. After this I think it shows a considerable amount of fortitude to declare that the Rose he himself announced as a Hybrid Tea does not belong to the class, unless he

means to assert that all Hybrid Teas are Teas, and would swamp that beautiful and refined class with a lot of Roses, some doubtless very beautiful, but others coarse. And now see how this holds with regard to a Rose which has been more cleverly introduced than any flower of recent years—Her Majesty. It was very finely exhibited by the raiser, it obtained the gold medal of the National Rose Society, and then retired from public gaze. The name itself was a taking one, and for a couple of years the constant question was, When would Her Majesty be let out? At last it was rumoured that it had been bought in its entirety by an American nurseryman, and that it was not to be had in England; then afterwards we heard that a very eminent firm of Rose growers in England had been appointed sole agents all this time. I am justified in saying that everyone's belief, although some were startled at the character of its growth, was that it was a Hybrid Perpetual. When it was announced here it was as an H.P., but the firm who sent it out gave its parentage—a hybrid between Canari and Mabel Morrison! I have no doubt the raiser thinks this is its parentage, but others will be equally certain that the hybridisations have been interfered with. The announcements by other growers gave it the character of a Hybrid Perpetual, but did not designate its parentage, and so it has come to be generally accepted that it is a Hybrid Perpetual.

What, then, is the conclusion of the whole matter? I do not think that we shall admit the claim of such Roses as Lady Mary Fitzwilliam, Cheshunt Hybrid, Reine Marie Henriette, Her Majesty, to be considered Teas, for if the first of these be a Tea the others must be; this is a claim which will never be allowed. They may, according to the wishes of the raisers, be placed either amongst Hybrid Perpetuals or amongst Hybrid Teas. To my mind it would be better to do away altogether with the classes of Hybrid Teas in the catalogues, and group all such Roses under the Hybrid Perpetuals; but then we must be sure of our ground. Such Roses as Miss Ingram, which was for many years considered a Hybrid Perpetual, should not be admitted amongst them, as it is essentially a summer Rose; nor, again, such as Madame Isaac Pereire, to all intents and purposes a Bourbon; nor again should Duchess of Edinburgh be classed amongst Teas, for it is nothing but a China. This is a class for which, I confess, I am very jealous. I should like it kept select, admitting only into it those which are of "pur sang."

These observations are only given for the purpose of trying to avoid the confusion which, I fear, looms ahead in the classification of our Roses.—D., Deal.

THE CULTURE OF ACHIMENES IN HANGING BASKETS.

THE baskets we prefer are 20 inches in diameter by 12 inches deep. They are strongly made of quarter-inch iron rods, as per accompanying sketch (fig. 18). They will last a lifetime if attended to in cleaning and painting every autumn as soon as the season is over.

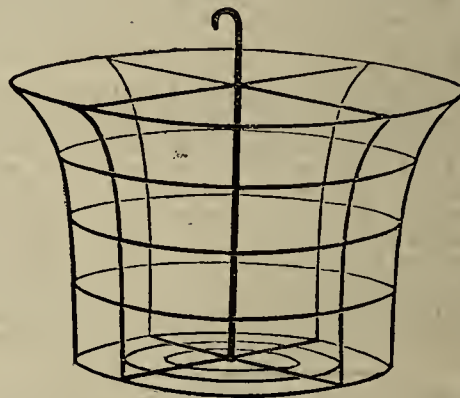


Fig. 18.

The tubers, which are preserved in dry sand in pots in winter in pits with a temperature of from 45° to 50°, are placed in pans or boxes towards the end of February, and are then placed in moderate heat; a vinery about to be started will answer the purpose admirably. The object to attain to should be to get a sturdy growth, hence the importance of starting slowly. When the plants have made about 2 inches of growth they are ready for planting.

The first operation in connection with this work is to have the baskets suspended in the position where the plants are to bloom. Afterwards have in readiness a sufficient quantity of tough, light, peat sods, 2 inches thick. Cut these with a knife in long strips about 2 inches wide, and commence planting the baskets by laying pieces of this peat strips in coils on the bottom of the baskets, with spaces between wide enough to take a row of young plants head downwards, about half an inch between plant and plant in the row. The space between the sods must not admit the rather fine soil in which they are planted to escape through. The same operation is repeated for planting the sides—namely, build up layer after layer of the strips of peat with a row of plants between each, as directed for the bottom, filling the body of the basket as th

work proceeds with the soil in which the plants are to grow. The top when finished should be slightly rounded.

The compost they thrive best in is loam, peat, and leaf soil in equal proportions, with sand enough to insure perfect drainage. The compost should be moderately moist at the time of planting, and the baskets should not be watered until the plants have fairly started into growth, which they usually do in the case of ten days or a fortnight. They should be frequently syringed at this stage, and if possible slightly shaded for a week or so, afterwards they should receive all the light and sunshine possible. While in active growth, up to the time they commence flowering, they should be syringed twice daily during bright weather if grown in light airy houses, but if grown in houses partially shaded and damp the syringing is not necessary, but they must have abundance of water at the roots. When the plants are in bloom the atmosphere of the house must be kept dry, airy, and fairly warm; indeed the air of an ordinary conservatory will suit them well at this stage. Dampness at this time is the greatest danger. If this can be kept away the baskets should continue in great beauty for two or three months.



Fig. 19.—A basket of Achimenes.

Our largest baskets (fig. 19) when at their best, are from 4 to 6 feet through, and one mass of bloom. It is often difficult to see even a leaf for the great abundance of the flowers.

As to varieties, most growers will have their own fancies, but I may remark that shy weak-growing varieties are no use at all for their purpose. The following are our standard sorts for baskets:—

Ambroise Verschaffelt.—A well known and popular sort. This makes a grand light-coloured basket.

Carl Woolfarth.—A strong grower; makes a magnificent basket of enormous size. Colour, purplish crimson; flowers large.

Harry Williams.—This does not make a large basket, but one of medium size and compact form. It is of a most pleasing colour, bright cerise with yellow eye and spotted with maroon, the lower part of the eye pale mauve. This makes a very telling basket.

Longiflora major and the old longiflora.—Both make beautiful baskets. The former has larger flowers, but the old variety, to my mind, produces quite as pleasing an effect.

Dazzle.—Bright scarlet, a shy grower compared with some of the

others, but if planted thickly makes an effective basket, the colour being so bright.

Margaretta.—A pure white variety, a good grower, and the best of its colour for basket work.

Many other varieties are grown here, but the above are sorts which can be depended on, and will give an interesting diversity of colours.

Achimenes may be grown in various ways, and when well grown are always interesting. We have them in pans, the finest growing varieties often 3 feet through. We also plant them freely on a rockery among Ferns, and also on carpets of Moss (*Selaginella Kraussiana*), where they have a very pleasing and refreshing appearance; but the method of growing them in suspended baskets is incomparably superior to any other; indeed I will go so far as to say that there is not another plant to be found which will surpass the Achimenes (for the summer months) in beauty and interest, when they are grown in this way.

The success in managing this plant will be in proportion to the care and intelligence exercised in handling the tender plants at planting time, and placing them in position without unnecessary damage to the roots or soft stems, and to the methodical and timely attention to all the details of culture above described.—O. T.

ROYAL HORTICULTURAL SOCIETY.

FEBRUARY 8TH.

THE annual general meeting of this Society was held in the East Crush Room of the Royal Albert Hall, at 3 P.M. on Tuesday, the 7th inst., the President, Sir Trevor Lawrence, Bart., M.P., in the chair. There was an unusually good attendance of Fellows, and the following members of the Council were present:—Baron Schröder, Major Mason, Dr. Robert Hogg, W. T. Thiselton Dyer, G. F. Wilson, Michael T. Foster, E. G. Loder, Colonel Beddome, S. Courtauld, William Haughton (Treasurer), William Lee (Secretary), and Captain Bax (Assistant Secretary).

The proceedings were commenced by the Secretary reading the notice calling the meeting and the minutes of the last annual general meeting. Sir Trevor Lawrence then proceeded to make a few comments upon the annual report and to explain the position of the Society. A question had already been asked as to whether the time at which the notices of alterations in the constitution of the Council was in accordance with the bye-laws, and the following explanation of the departure from the usual course was then furnished. The Council met on December 7th, 1886, when there was so much business to be transacted that some had to be postponed until January 11th. Then there would have been time to issue the notices by the 15th ult. had not some difficulty occurred as to whether the gentleman proposed to fill the vacancies on the Council would accept the position, and before this could be determined the requisite time had lapsed. They therefore could not proceed with any election until the due notice had been given before another meeting is held, the Council and officers remaining in the meantime as before. The President observed that the Council had to regret the death of Mr. West, who had rendered the Society most valuable services as auditor, and they wished to express their hearty condolence with his family.

Referring more particularly to the report, Sir Trevor Lawrence regretted that he was unable to give a definite statement as to their prospects. The negotiations with the Albert Hall Corporation had fallen through because the terms proposed by the Commissioners of the 1851 Exhibition to the latter were of such a nature that they declined them unanimously. The position now is that the Commissioners would place alternative terms before the Albert Hall Corporation, and in the event of these being unaccepted they would be prepared to enter into direct negotiations with the Royal Horticultural Society. He could not conceal that the position of the Society is very unsatisfactory, but it could not establish itself in an independent position without considerable expense. It was very desirable that the Society should have a home of its own if a way could be seen to obtaining the necessary funds. He thought it was desirable if possible to make an arrangement to the mutual advantage of South Kensington Fellows and horticulturists generally, but they could not sacrifice the interests of the Society to the former element. Their recent position had not been creditable to them, but their grateful acknowledgments were due to the Commissioners for their terms of occupation. They had permission to use the offices they now occupy by accepting all liability as to rates and taxes, but the use of the conservatory for shows and meetings had been declined unless some arrangement could be effected with the parochial authorities by agreeing to pay a stipulated sum for rates each time it might be employed for that purpose. This, it was thought, might be accomplished, and the matter would be decided as quickly as possible.

As regards the Liverpool Show, upon which the accounts show a considerable loss, he wished the Fellows to understand that the matter was fully considered before it was undertaken. The Mayor of Liverpool and other local authorities were consulted, who represented it as an exceptionally favourable opportunity, and in matters of this kind they were necessarily chiefly dependant upon local information. Happily, however, the Show was a great success horticulturally, and they must also express their acknowledgments to the guarantors for the promptness with which this fund was paid. The work at Chiswick had been carried on in the usual way, but they hoped during the year to make more use of the Gardens than before, as much space and time had been occupied during the past season with the plants for the Indian and Colonial Exhibition. Sir Trevor Lawrence referred to the meeting of the Horticultural Club recently (noticed on page 91 last week), and stated what a strong feeling existed that the Society should establish itself in a home of its own. He could not believe that a Society which has done so much good work as this would appeal in vain for support if they could see a clear course. Mr. H. Turner was nominated as auditor in the place of the late Mr. West.

ANNUAL REPORT FOR 1886.

The usual accounts and balance sheet are submitted to the Fellows.

The Council have been for a long time anxiously considering the arrangements which have now to be entered into, in order to enable the Society to carry on the useful work on which it has been engaged during nearly the whole of the present century. While they cannot conceal from themselves that the Society's connection with the recent Exhibitions, and indeed with South Kensington generally, has been gravely disadvantageous to it in the prosecution of its legitimate work—the promotion of scientific and practical horticulture—it is obvious that the Society could not establish itself in a new home adequate to its requirements without undertaking a very serious expenditure, for which funds would have to be provided. The Council have therefore entered into preliminary negotiations with the Royal Albert Hall Corporation, and they are prepared to recommend to the Fellows that they should be empowered to enter into an agreement with that body on the following terms—terms which the Council believe will leave the Society practically independent, while providing sufficient accommodation for its wants.

The Royal Albert Hall Corporation agree to give the Royal Horticultural Society:—

- (a) The use of the Conservatory for fortnightly and other shows.
- (b) Accommodation for the Lindley Library and the meetings of the Scientific, Fruit, Floral, and other Committees.
- (c) Accommodation for the Society's office and staff.
- (d) Admission to the Royal Horticultural Gardens every day, and to the Royal Albert Hall (unreserved seats) whenever open to the public.

The Royal Horticultural Society undertake the horticultural (but not the structural) maintenance of the Conservatory, and of such limited portions of the Gardens as may be occupied by the Royal Albert Hall Corporation, and to contribute an amount to be agreed upon towards the heating of the Conservatory. It is distinctly understood that the Royal Horticultural Society will enter into any agreement it may make as an independent body, and that the Society will have no connection whatever with the musical or other entertainments contemplated by the Royal Albert Hall Corporation. The latter body have intimated that at present they are not prepared to give the Fellows of the Royal Horticultural Society transferable tickets.

It will be observed that there is a considerable deficit on account of the Provincial Show held at Liverpool in the summer, the small attendance at which was due, in part, to the General Election which took place at the same time. It was also found that the counter attraction of the Liverpool International Shipping Exhibition affected the attendance very prejudicially—many people labouring under the impression that the Royal Horticultural Society's Show formed part of that Exhibition. In point of merit the Society's Show surpassed any of those previously held in the provinces. Many of the collections were models of successful cultivation, and finer Orchids, Crotons, Dracenas, miscellaneous stove, greenhouse, and hardy plants have rarely, if ever, been seen. The cut flowers, fruit, and vegetables were remarkably good, and the exhibition of glass structures and heating apparatus attracted great interest, especially in the boiler competition. The Royal Horticultural Society desires to acknowledge its obligation to the large and enthusiastic body of exhibitors who filled every class at this Exhibition.

The Council cannot pass from this subject without expressing their sense of the readiness and promptitude with which the sum guaranteed by Liverpool towards the expenses of the Show has been paid.

At the commencement of the year the Society laboured under the great disadvantage of being deprived by the Royal Commissioners of the Colonial and Indian Exhibition of the *transferable* tickets issued to the Fellows, in consequence of which many notices of resignation were received by the Council.

The Narcissus Committee, in continuation of its previous work, held during the past year three meetings, at which a large number of very interesting specimens of Narcissus, from various parts of the United Kingdom and from abroad, were submitted for critical examination. Several interesting discussions took place, and some progress was made in the difficult task of Narcissus nomenclature.

The Primula Exhibition and Conference held in April last, under the presidency of J. T. D. Llewelyn, Esq., was organised in connection with the exhibition of the National Auricular Society. A representative display of "Florists' Flowers" was thus secured, and, in connection with it, a general exhibition of species and varieties of the genus Primula. The Council is under great obligations to the directors of the Royal Gardens, Kew, and other botanic gardens in England, Scotland, and Ireland, as well as to numerous amateurs and nurserymen, for the means of carrying to a successful issue an exhibition of a unique and most interesting character. The Society is also indebted to those botanists on the Continent, in Canada, and in India, who, by the transmission of seeds, living plants, illustrations, and documents of various kinds, contributed to the success of the Exhibition and Conference.

The Conference itself was well attended, the interest evoked sufficing to bring several visitors even from Scotland and Ireland. The papers read were at once comprehensive and suggestive, and the discussion upon them was particularly instructive. A report of the Exhibition and of the Conference, including the text of the papers, a complete list of species (drawn up by Mr. Dewar, of the Royal Gardens, Kew, and revised by Mr. G. C. Churchill), and various documents relating to the natural history and mode of cultivation of the species of Primula, has been recently published and circulated among the Fellows.

During the week of the provincial show at Liverpool a conference on Orchid nomenclature was held. This was attended by M. Charles Joly, on behalf of France, and by Messrs. Pynaert and Van Volxem on that of Belgium. The proceedings have been published in the Journal of the Society and circulated among the Fellows and others interested.

At the same time a series of prizes for essays on the "Structure and Function of Roots," given by the *Gardeners' Chronicle*, were distributed by the President, the second prize being gained by one of the Society's gardeners at Chiswick.

The practical work at Chiswick has been carried out during the past year in the usual manner, and the garden maintained in a state of efficiency.

The special trials by the various committees, although not so varied as

in some previous years, have yielded good results. The Fruit Committee trials consisted of Potatoes, Peas, Strawberries, and Tomatoes grown at Chiswick, in each class several certificates were awarded.

A collection of the smaller and hardier high-flavoured Grapes, together with a number of American varieties, planted in an unheated house two years ago, have fruited during the past season, and some interesting notes have been obtained.

The trials of the Floral Committee were also conducted at the Chiswick Gardens. Collections of Fuchsias, Ivy-leaved Pelargoniums, Carnations, Hollyhocks, and Dahlias were received and grown on in the houses and open borders for the inspection and adjudication of the Committee.

Steps were taken during the early part of the year to carry out at Chiswick extensive experiments for the Government in the cultivation of Tobacco, seeds being obtained and plants raised of nearly every known variety. Owing, however, to the difficulties raised by the Excise authorities these had to be abandoned.

At the request of the Royal Commissioners of the Colonial and Indian Exhibition, the Society last year took charge of the plants sent home by the various colonies, and prepared them for the Exhibition. This important and burdensome work was carried out with complete success. The whole of the plants were placed in the Exhibition in perfect health, and maintained in a vigorous condition during the Exhibition, under the care of the Society. This work necessarily occupied a considerable amount of room, and interfered with the general work of the Chiswick Gardens.

A correspondence was entered into with the Commissioners of the Colonial and Indian Exhibition with a view of organising in connection with it special collections of tropical and other economic plants, as well as special groups illustrative of the characteristic vegetation of the several colonies. It was also suggested that an organised effort might be made to introduce on a commercial scale tropical and other colonial fruits, little known to fruit consumers in England. The Commissioners were unable to accept the proposals of the Council, as it was found desirable that the separate Executive Commissions should arrange their own exhibitions. As regards fruit, however, the Council believe that in consequence of their suggestion, energetic efforts were made by the colonies to send their fruits to the Exhibition. At many of the Society's shows they formed a very striking feature, and the importation of colonial fruits now bids fair to become a permanent commercial enterprise.

Applications from Fellows for plants, seeds, &c., continue to be received. During the past year 825 Fellows have been supplied with 18,280 plants, 42,000 packets of seeds, and 4500 cuttings of Vines and other fruit trees. The Council have come to the conclusion that the present system of seed and plant distribution is not satisfactory. Of late years a number of parcels of ordinary flower and vegetable seeds, such as are procurable from the trade, have been prepared and distributed. The Council hope to arrange in future for the distribution of plants and seeds of a rarer and more valuable character. They are glad to announce that, in addition to those they will be able to grow at Chiswick, they have received promises of plants and seeds for distribution from Sir Trevor Lawrence, Mr. William Lee, Baron Henry Schroder, Professor Michael Foster, Mr. S. Courtland, Royal Gardens, Kew (through Mr. W. Threlton Dyer), Colonel Beddome, Hon. and Rev. J. T. Boscawen, Mr. G. F. Wilson, Colonel R. Trevor Clarke, and Major Mason. As the quantities of some of the plants available must necessarily be limited, special arrangements will have to be made for their distribution.

The crops of Grapes and Pears have been of a good average character, other fruits rather scarce. It is satisfactory to note that the Fellows now exercise their privileges of purchasing, at wholesale prices, the fruits grown at the Society's gardens to a greater extent than heretofore.

Donations of plants and seeds have been received from—Messrs. Barr & Son, collection of bulbs, &c.; Colonel R. Trevor Clarke, eighteen species of rare Croci, &c.; Mr. J. A. Gammie, Orchids; Mrs. Lee (Gunnerybury), five large Olanders; Royal Botanic Gardens, Kew, collection of Salvias, Palms, and other seeds; Mr. G. Stevens, Chrysanthemums; Duke of Marlborough, Phoenix capitata; Mr. G. Prince, Tea Roses; Mr. John Fraser, Apricots and Peaches; Messrs. Paul & Son, Strawberries; Mr. C. Turner, Strawberries; Messrs. James Veitch & Sons, Strawberries; the Countess of Dartrey, seeds, Rhododendron; Botanic Gardens, Brisbane, seeds, Araucaria; Sir George Macleay, seeds, Palm, &c.; Baron Von Müller, F.R.S., seeds, New Holland plants; Dr. Schomburgk, seeds, New Holland plants; Herr Ernst Benary, seeds, flower and vegetable; Messrs. James Carter & Co., seeds, flower and vegetable; Messrs. Vilmorin, Andrieux and Co., seeds, flower and vegetable; Messrs. Daniels Brothers, Potatoes. To these and other donors the thanks of the Society are due.

The frost report on the winters 1879-80 and 1880-81, by the Rev. G. Henslow, and the report of the Pear Conference, held at Chiswick in October, 1884, prepared by Mr. Barron in the same style as the Apple Congress Report, will shortly be issued.

The Scientific, Fruit, and Floral Committees at South Kensington have carried on their labours as usual during the year, and to them the thanks of the Society are due. A great variety of extremely interesting new plants and flowers have been submitted for adjudication. The number of first-class certificates awarded has been 230.

The exhibitions held in the conservatory during the past year have been throughout of a very high character, forming a great attraction to the visitors to the Colonial and Indian Exhibition. The National Rose Society's Show in July, that of Cottagers' Produce in August, of Grapes in September, of Hardy Fruits and Vegetables in October, may be specially mentioned. A varied, extensive, and continuous display of Lilies, Gladioli, herbaceous and other hardy plants, was furnished by several nurserymen, and attracted much interest.

A novel feature in 1886 was the collection of Orchids in flower, shown by Mr. Sander of St. Albans, under the auspices of the Society, in a plant house specially constructed for the purpose. The plants were continually changed, and an effective display was maintained without a break until late in the summer. This collection, as well as those referred to above, created great interest, so much so that it was frequently difficult to get near them.

The Council desire to point out that the fortnightly meetings of the Society are becoming more and more the recognised occasions for the introduction of new plants to the public. They believe that for many years the finest and most beautiful as well as the most curious, horticultural

novelties, whether of natural or artificial origin, have been first seen publicly at these meetings.

The thanks of the Society are due to Messrs. Sutton & Sons, Messrs. Carter & Co., Mr. H. Deverill, Messrs. Webb & Sons, and Mr. C. Fidler for their donations of special prizes.

The Council desire to convey the thanks of the Society to the Auditors, Messrs. John Lee, James F. West, and W. Richards, for their continued gratuitous services in auditing the accounts.

Numerous additions have been made to the Lindley Library during the past year, and a handbook of every colony represented at the late Colonial and Indian Exhibition has been secured.

During the year twenty-nine Life Fellows and thirty-two Annual Fellows died, 200 Fellows retired from the Society, and seventy new Fellows were elected.

AUDITORS' REPORT.

To the President and Council of the Royal Horticultural Society.

Gentlemen,—We have audited the accounts of the Society for the past year, and have gone through every item with the vouchers and find them perfectly correct. It is very gratifying that the books of the Society are kept by Mr. Dick in a very clear and perfect manner.

We much regret that two great disturbing influences have had a serious and depressing effect on the finances of the Society in 1886; the first being the taking away the privilege of transferable tickets of admission, and making them personal, which resulted in the resignation of a large number of Fellows, causing a reduction in the receipts of this most important part of the revenues to the amount of £850. Secondly, the failure of the Liverpool Exhibition, which shows a deficiency over the receipts of £740, and, added to the loss from subscriptions, makes a total loss under these two heads of £1590, against which there is the asset of £300 for overdue subscriptions.

We have the honour to remain, Gentlemen,
Your most obedient Servants,

JOHN LEE,
JAS. F. WEST, } Auditors.
W. RICHARDS,

January 26th, 1887.

ANNUAL REVENUE ACCOUNT FOR THE YEAR ENDING 31ST DECEMBER, 1886.

	EXPENDITURE.		Totals.
	Cash paid.	Debts payable.	
	£ s. d.	£ s. d.	£ s. d.
To Establishment Expenses:—			
Salaries	500 1 8	500 1 8	
Wages	73 0 8	73 0 8	
Printing and Stationery ..	100 17 11	16 0 5	116 18 4
Postage	90 4 9	8 6 6	98 11 3
Gas	17 9 3	7 13 10	25 3 1
Miscellaneous	101 19 2	30 0 6	131 19 8
			945 14 8
" Special Expenses in Relation to Horticulture:—			
Plant and Seed Distribution ..	236 4 4	31 13 1	267 17 5
Fruit and Floral Committees ..	75 14 0	28 18 9	104 12 9
Grants in Aid	110 0 0		110 0 0
National Apple Congress Report ..		2 3 0	2 3 0
Frost Reports	12 12 0		12 12 0
Orchid Conference	68 9 0		68 9 0
Primula Conference	14 6 8		14 6 8
Pear Conference		11 5 0	11 5 0
			591 5 10
" Chiswick Garden Expenses:—			
Rents, Rates, Taxes, and Insurance ..	198 0 11	58 4 8	256 5 7
Labour	718 18 9		718 18 9
Implements, Manure, &c. ..	110 17 4	4 0 0	114 17 4
Coal and Coke	151 1 3	44 16 11	195 18 2
Repairs	78 3 0	82 16 2	160 19 2
Trees, Plants, Seeds, &c. ..	25 0 0	12 10 10	37 10 10
Superintendent's Salary ..	150 0 0		150 0 0
Water	15 19 10	3 13 6	19 13 4
Miscellaneous	68 9 11	48 15 5	117 5 4
			1771 8 6
" Kensington Garden Expenses:—			
Superintendent's Salary ..	100 0 0		100 0 0
Labour	517 1 8		517 1 8
Repairs	15 2 4	11 9 8	26 12 9
Coal and Coke	52 18 9	17 19 9	70 18 6
Miscellaneous	3 0 0		3 0 0
			717 12 2
" Exhibitions:—			
Advertising	37 9 6		37 9 6
Prizes and Medals	23 13 5	49 15 0	78 8 5
Ditto Col. & Ind. Exhibition ..	454 12 3	50 10 0	505 2 3
Bands	25 0 0		25 0 0
Superintendent of Flower Shows ..	25 0 0		25 0 0
Labour	94 9 6		94 9 6
Judges' Fees	26 5 0		26 5 0
Police	12 0 0		12 0 0
Schedulies	40 9 0		40 9 0
Miscellaneous	18 19 5	67 19 11	83 19 4
			951 3 0
" Provincial Show—			
Liverpool	2863 16 3	560 16 0	3424 12 3
	£7232 7 6	1149 8 11	£8381 16 5

	INCOME.		Totals.
	Cash received.	Debts receivable.	
	£ s. d.	£ s. d.	£ s. d.
By Annual Subscriptions ..	2431 3 0	333 18 0	2815 1 0
" Promenade Shows	33 0 0		33 0 0
" Colonial & Indian Exhibition Maintenance ..	600 0 0		600 0 0
" Prizes and Medals	505 2 3		505 2 3
" National Apple Congress Report ..		4 6 5	4 6 5
" Salaries Account, Amounts Guaranteed; ..	75 0 0	175 0 0	250 0 0
" Garden Produce	411 10 9	55 13 4	467 4 1
" Plants sold, Chiswick	12 15 0		12 15 0
" Packing Charges	43 17 0		43 17 0
" Miscellaneous Receipts	33 10 9		33 10 9
" Orchard Conference	1 15 5	0 10 10	2 9 3
" Schedule Advertisements	35 19 0		35 19 0
" Dividends, Davis Bequest and Parry Legacy ..	61 11 0		61 11 0
" Victoria Commission	11 17 2	21 0 0	32 17 2
" Ceylon ditto	7 18 7		7 18 7
" South Australian Commission ..	1 5 7		1 5 7
" Antigua ditto	8 7 6		8 7 6
" Provincial Show, Liverpool ..	2581 2 5	100 0 0	2681 2 5
	£6910 13 4	£590 8 7	£7501 6 11
" Balance to General Revenue Account ..			780 9 8
			£8381 16 5

We have examined the Accounts with the Books and Vouchers, and we find the same correct.

27th January, 1887.

JOHN LEE,
JAS. F. WEST, } Auditors.
W. RICHARDS,

BALANCE SHEET, 31ST DECEMBER, 1886.

DR.			£ s. d.
	To Sundry Creditors ..	.. .. .
	" General Revenue Account—Balance of that account ..	.. .. .	1172 6 5
			1882 5 9
			£2054 12 2
CR.			£ s. d.
	By Debtors, viz:—		
		1884. 1885.	
		£ s. d. £ s. d.	
	Annual Subscriptions outstanding ..	.. .. .	333 18 0
	National Apple Congress Report ..	.. .. .	4 6 5
	Salaries Account due by Guarantors ..	.. .. .	175 0 0
	Garden Produce, 1885 .. .. .	.. .. .	0 12 6
	Orchid Conference .. .. .	.. .. .	55 13 4
	Victorian Commission .. .. .	.. .. .	0 10 10
	Provincial Show, Liverpool Guarantors ..	.. .. .	21 0 0
	New South Wales Commission .. .. .	.. .. .	100 0 0
			1 12 8
			692 13 9
	" Investments—3 per cent. Consols ..	.. .. .	1,892 11 3
	" Cash at London and County Bank ..	.. .. .	417 5 4
	" Petty Cash in Hand .. .. .	.. .. .	52 1 10
			£2,054 12 2

We have examined the above Accounts with the Books and Vouchers, and we find the same correct—

27th January, 1887.

JOHN LEE,
JAS. F. WEST, } Auditors.
W. RICHARDS,

GENERAL REVENUE ACCOUNT, 31ST DECEMBER, 1886.

DR.										£	s.	d.
To Annual Revenue Account, Balance for the year 1885	..	..	..	..	..	..	..	..	..	780	9	8
„ Balance carried forward	..	..	..	..	..	..	..	..	..	1882	5	9
										£2662	15	3
CR.										£	s.	d.
By Balance of Revenue Account brought forward 1st January, 1886	..	..	..	..	..	..	..	..	..	2662	15	3
										£2662	15	3

We have examined the above Accounts with the Books and Vouchers, and we find the same correct.

27th January, 1887.

JOHN LEE,
JAS. F. WEST, } Auditors.
W. RICHARDS,

In moving the adoption of the report some discussion ensued. Mr. Guedalla thought the time had arrived when a plan should be elaborated by which the Society could be established on a more satisfactory footing. Mr. Llewellyn wished to know, with regard to the shows of the special societies which had been arranged to be held in the Conservatory, whether the earliest possible intimation as to any change would be given, as the schedules are now being printed. Sir Trevor Lawrence said, in reply, that in the event of any difficulty occurring, the Royal Horticultural Society would feel itself bound to provide some other suitable place. Several other Fellows took part in the discussion at this stage. One thought the accounts were in a very unfortunate state; he wished to know what advantages could now be offered to Fellows in return for a 4-guinea subscription. Another considered the finances were getting worse and worse, and that they should make every effort to obtain an independent position. A 40-guinea life Fellow regretted the difficulties in which the Society was placed, but thought the life Fellows had been badly used in rendering their tickets non-transferable. He wished to know whether the life subscriptions had been capitalised, or what had been done with the debentures. The President stated in reply, that the life subscriptions had been spent, and between £900 and £1000 had been expended in supporting the rights of the debenture holders.

Mr. Harry J. Veitch said some valuable suggestions had been made, and he believed that they might by united efforts remove the Society from its present difficult position. They had an excellent Council, and the observations he was about to make were not offered in an antagonistic spirit, but he thought the report might have been more business-like. For some years the Society had been knocked about from pillar to post—since, indeed, they lost their President, the Prince Consort. He believed the Queen was then desired to nominate a President, and he thought if Her Majesty was applied to now more progress might be made in the settlement of their affairs. Land had been found at South Kensington for several societies, who now had permanent positions, and he could not see why the Royal Horticultural Society should not be treated in a similar way. If land could be so obtained there would be no difficulty in procuring funds. He therefore proposed that a Committee of five persons be appointed to confer with the Council to determine what course the Society should adopt, and, if possible, to procure land as a site for permanent offices.

Mr. Elwes had much pleasure in supporting Mr. Veitch's proposal, but it seemed to him that the great difficulties would be removed by the employment of an efficient paid Secretary, as some of the most successful societies owed their prosperity in a large measure to their secretaries, who are really the managers. He thought the continued existence of the Society was mainly due to Mr. Dick and Mr. Barron. He mentioned that the report of the severe winters six or seven years ago was not yet issued. Mr. A. H. Smee thought that the Society would never do any good until it was clear of South Kensington. If it would give up there and make its home at Chiswick he felt sure any amount could be raised. He would willingly head a subscription list with 100 guineas to assist in establishing the Society away from South Kensington. After some few explanatory remarks by Sir Trevor Lawrence, the report was then formally seconded and adopted.

Mr. Shirley Hibberd thought it was disadvantageous that the Council are self-elected, and that the Fellows should be required to nominate members of the Council a month in advance. He complained that no list of the Fellows had been issued for ten years and he believed it would be better if the annual general meeting was held in May instead of February.

Mr. Veitch's proposition as to the formation of a sub-committee was then adopted, five Fellows being nominated, Messrs. Maw, Elwes, Veitch,

Pollett, and Major Lendy, "To consider the future of the Society and report thereon at their earliest convenience."

On the motion of Dr. Masters a unanimous vote of thanks to the President was then passed, and the meeting terminated.

ORCHID LORE.

[A paper by Mr. Lewis Castle, read at the meeting of the Lee, Lewisham, and Blackheath Horticultural Society, January 28th, 1887.]

ORCHIDS have gained such a large share of popularity in recent years, their commercial value has become so great, and the total amount of capital now invested in them, both by nurserymen and amateurs, is so astonishing, that the question may well be asked, Why has such general favour been extended to these plants? Why do we find wealthy amateurs with a dozen houses stocked with plants that in some cases are literally worth their weight in gold, town gardens with their houses of cool Orchids, the nurseryman with a score of structures devoted to them, and the sale rooms crowded with eager purchasers every week? A brief search for answers to these queries may occupy our attention for a few minutes, and may serve to introduce other matters of some interest.

It has been related that at one of the London Horticultural Society's exhibitions many years ago a plant of the Butterfly Orchid, *Oncidium Papilio*, was shown, and attracted much attention from the visitors present, who were not so accustomed to the peculiar floral forms of Orchids then as they are now, though even at shows of the present time that species always creates some surprise. But amongst those who viewed with astonishment the extraordinary resemblance the flower bears to some gaudy tropical butterfly, was one whose interest was so deeply excited in the vegetable wonder that he determined to form a collection of the plants to which it was related. Many will remember that this was a former Duke of Devonshire, who became the most distinguished patron of the family, and at great expense dispatched collectors to various regions to secure the treasures in quantity. One of the first consignments was received just fifty years ago, and the stoves at Chatsworth were soon stocked with thousands of choice Orchids, many of which were introduced for the first time. This gave the greatest impetus to Orchid culture which it had received up to that time, and since then the progress has been steady, the number of those remarkable for the unusual forms of their flowers being greatly increased. Scarcely any, however, have been obtained more striking in their mimicry than the Butterfly *Oncidium*, and no thoughtful person can fail to be impressed with the singularity of its form.

Attention being once drawn in a prominent manner to the Orchids it was soon discovered that a large number of them, quite apart from structural peculiarities, possessed no mean horticultural value, having flowers of varied forms and colours, rich brilliant and soft tints being represented, a diversity of odours, many exceedingly sweet, and a duration of floral beauty that in some cases is quite unequalled in any other family of plants. These qualities were sufficient to induce wealthy cultivators to regard Orchids favourably, to extend their numbers, and to extol their beauty. But another cause began to operate in the same direction, as botanists had for some time been studying the character of the family as displayed in the rapidly increasing introductions, and it may be said that these observations culminated in the experiments and researches of Mr. Charles Darwin, which were embodied in his work on the fertilisation of Orchids. This might be termed the "Romance of Botany," for in it is related a marvellous history, possessing, moreover, the advantage of being a record of facts. Thousands of readers then learnt for the first time that there was a secret history connected with Orchids, of which they had never dreamed; the strange floral forms that had excited so much surprise were found to bear a relation to the plant's existence and increase, which could have been scarcely believed if it had been less conclusively proved, and their beauty was only rivalled by the mystery of their destiny. Proceeding on the assumption that there must be a reason for the strongly marked peculiarities of the Orchids and their unique character amongst other related vegetation, Mr. Darwin examined a great number of flowers of different species, conducted his experiments with the exactness of a practised scientist, and drew his conclusions with logical accuracy. The result was, he proved indisputably, in a large number of instances, that the strange formations of Orchid flowers were so many elaborate adaptations to entice insects of various kinds and to render them the agents whereby the cross-fertilisation of the plants should be insured. This explanation not only served to elucidate the structure of Orchids, but it also furnished a reason for the apparently endless variations continually being found, and for the difficulty which existed in clearly defining the limits of many species.

Mr. Darwin's work became very popular, and naturally attracted still more attention to the plants on which it treated. They became the favourite objects of study of the learned and wealthy throughout Europe, and were firmly established in an almost unrivalled popularity that is still increasing. In brief, it will thus be seen that Orchids have obtained their present high position, not merely because they are beautiful, but because, in addition to an exceptional natural gracefulness, they are extremely interesting structurally, and besides furnishing the pleasure derived from the contemplation of charming flowers, they supply a mental pleasure in their study that few others can equal and none exceed.

This is said without the slightest disparagement to our numerous delightful garden flowers, the Rose, the Violet, the Chrysanthemum, the Primrose, the Daffodil, and innumerable others which excite our admi-

ration, and the true gardener, whether amateur or professional, will love them all, though he may have a special liking for one or more of them.

Most of those present are, no doubt, familiar with Orchids, but a few words of explanation may serve to render their structure more clear to others. Little need be here said concerning the vegetative organs of these plants. The chief differences in this respect are found in the two groups termed respectively epiphytal and terrestrial. The epiphytal Orchids are those best known to cultivators as natives of tropical countries, and usually possess fleshy cylindrical roots, or curiously flattened as in *Phalænopsis*, with or without a rhizome bearing swollen ovoid stem-like bodies termed pseudo-bulbs, as in the *Odontoglossums*, or true stems as in the *Vandas*. The pseudo-bulb is an important organ, serving as a store-house of nutriment, and one of the chief objects of cultivators who wish their plants to flower satisfactorily is to insure the development and maturation of the pseudo-bulbs. Another cultural point is, that the non-pseudo-bulbous Orchids can never be rested or dried as some others are, and consequently are more difficult to import. This is seen in *Phalænopsis* and *Cypripediums*.

The terrestrial Orchids comprise the natives of temperate climates, such as those found in our own country and in North America. These plants are commonly furnished with tubers that perform a similar function underground to the office of the pseudo-bulbs in the epiphytes. The terrestrial species are generally deciduous or herbaceous—that is, the stems die each autumn, the plant hibernates as it were, and fresh stems are produced the following spring like the well-known beautiful *Cypripedium spectabile*.

With a few exceptions the leaves are not remarkable in either of the two groups named, and it has been said that Orchids out of flower are amongst the most unattractive of plants. The *Cypripediums* with beautiful marbled or mottled foliage, and those exquisite little gems the *Anætochili*, must, however, be excepted from this sweeping denunciation. The leaves of the latter show the most delicately chaste tracery and venation of silver and gold that can be found in the whole vegetable kingdom, and it is regrettable that they prove so difficult to manage satisfactorily, though a successful cultivator is well repaid for his trouble.

Most of the cultivated Orchids are of moderate dimensions, the *Vandas* and the *Vanilla* attaining the greatest size as regards height, while some of the *Masdevallias* or *Pleurothallis* are the smallest seen in our houses; but these do not represent the extremes of growth variation in the family, for there are both giants and dwarfs of a far more remarkable character. In Australia and some of the tropical islands to the north of "the great southern land," are found species of a genus named *Galeola*, that ramble and scramble up trees to a great height, producing stems 30 to 100 feet or more in length, trailing about with true tropical luxuriance. On the other hand, minute forms of *Bulbophyllum* have been discovered, of which a little colony of plants can be comfortably placed on a shilling.

(To be continued.)

TABLE DECORATING.

IN some respects there is much less artificiality of treatment in decorating dining tables than was the case a few years ago, though it must be said that the gardener has a more varied and a greater demand made upon him for material than in those times. The risk of overstepping the boundaries of fashion is moreover much less now—perhaps as much on account of the individuality of flowers being recognised, though maybe unconsciously, to a greater extent than in former years. Plants are being gradually displaced by flowers, though it would be a retrograde step to dispense with the former, their value in adding to the effect of the decorations on large tables being very good. In the case of small parties, especially when the tables are lighted with candles set in massive candelabra, they generally detract from that lightness of appearance which should be aimed at, and that without yielding any compensating advantages. With large tables the case is somewhat different, and good plants are the means of imparting a massiveness of appearance which is not out of place. It is not necessary to adhere to any one method of setting-up plants. Where there are vessels of gold or silver good plants may be very effectively placed in these without any further dressing, or by the addition of a trailing plant or two, such as the variegated *Panicleum*, the vessel may be veiled with leafage. Massive fruit and floral centrepieces, which are generally heavy in appearance, may be made by the combination of plants, fruit, and flowers, rather graceful than otherwise. One such was treated as follows:—In the upper tray a centre plant of *Cureuligo recurvata* was placed, and along with this a healthy plant of *Asparagus plumosus*, the feathery leafage of which was so arranged as to impart the needed lightness of appearance. Yellow and black Grapes were heaped over the roots of these plants, and hung over the edges of the receptacle. In the lower tray three good plants of *Panicleum* not only veiled the heavy stem and pedestal, but served for a setting to well-coloured Apples, Oranges, and Pears. *Cocos Weddelliana*, Roman Hyacinths, and

Maidenhair Ferns were also sparingly placed among the fruit. Of course, a large dining table is required to justify the use of so striking a centrepiece.

A very handsome centre arrangement for a large table may be set up in the following way. Select a good plant about 4 feet in height. Place this in the centre of a good-sized ordinary oval serving tray. At each side of this plant put an *Asparagus plumosus*, and round the outer edge of the tray a few foliage plants, such as *Dracenas*, *Crotons*, or *Palms*, though it may be noted here that none is better for all purposes than green-leaved plants, and this more particularly when flowers are used to any great extent. After the various plants are set in position fill in between the balls with moist well-worked clay. If flowers are scarce the clay may be covered with the common *Selaginella*, and have a few graceful flowers over its surface. When the tray is set on the table finish off the edge. Seedling *Adiantums* laid on the cloth in a slanting position are best for this purpose, and a few of these may be introduced among the *Selaginellas* with good effect. If there are plenty of flowers, however, instead of using the moss the entire surface may be dotted with some particular kind, as, for instance, white *Chrysanthemums*, white *Azaleas*, Paper-white *Narcissus*, or double white *Primulas*, and among these place wired sprays of *Lily of the Valley*, white *Tulips*, Roman *Hyacinths*, *Calanthe vestita*, or white *Odontoglossums*. *Richardias* and *Eucharises* are also very good, but these should be kept low. *Cœlogyne cristata* is capital for finishing off the edges. Among white flowers sprays of the common variegated *Panicum* add greatly to the effect, and if it is considered necessary to add more green than that afforded by the plants a few trailing sprays of *Ficus repens* or *Myrsiphyllum asparagoides* are preferable to Ferns.

Coming now to flowers, it may first of all be noted that nothing surpasses pure white flowers for table decoration. For breakfast or lunch the addition of yellow adds to the effect without in any way destroying the chasteness of the white. However, by candlelight yellow and white appear very much alike, and orange and brown shades or soft rose may be employed to give colour. An occasional richness of tone may be attempted, crimson *Tulips* being very good. *Amaryllises* are also good. *Clematis Jackmanni* affords a very effective hue. When plushes are employed it will be found much better to harmonise the flower used with these. Thus, a yellow plush may have all the flowers white or greenish yellow, as *Cypripedium insigne*; or soft rose, when Chinese *Primulas*, *Pelargoniums*, or *Tulips* may be used; or orange-browns are admissible. A deep lilac, like *Aster bessarabicus*, is also good.

There is no better medium for setting-up flowers than common globe-shaped glasses. In these one good bloom or truss may be placed, or a large number of flowers and foliage may be arranged with good effect. These glasses have the primary advantage of showing the flowers themselves, which ought to be (but unfortunately is not) the end of floral decorating. Tall glasses in any shape are out of place for table work. Crystal shapes of trough shape are in occasional use. When well done these are pretty, but they are extremely wasteful of material. There is some difficulty in getting foliage and flowers to remain in position in these receptacles, and various methods are employed to secure this end. Nothing, however, does better than small sprays of common *Box* put in thickly among the water, the stalks of the legitimate occupants being held tightly among these. Much the same remark applies to the "fairly lamps," which are apt to give trouble through the flowers falling out of place. *Box*, as above indicated, makes a perfectly secure medium to hold the flowers in position. As it is necessary to veil the shades with foliage, the heat from the lights causes great waste of material, Ferns being completely spoilt in one night. Sprays of *Thuia gigantea*, *Wareana*, or *Elwangeriana* stand better than anything, and are fairly good for the purpose in other respects. The prettiest of all the shades are, I think, the yellow ones. With the glasses filled with white flowers and foliage only these are soft and pleasing in effect. For breakfast the lampstands may be utilised by putting small globe dishes filled with flowers in the place of the lights and shades. A very pretty method of using flowers is to stand them on the tablecloth among foliage. During summer good blooms of *Roses* wired are set up among their own foliage. *Lapagerias*, *Eucharises*, *Michaelmas Daisies*, *Marguerites*, *Chrysanthemums*, *Tulips*, &c., are suitable for this purpose.

For single blooms a strong ordinary bouquet wire is bent so as to stand quite firmly on the cloth and support the flower, which is tied to the upright portion of the wire, the portion on the cloth being hidden among foliage. With longer and stronger wires large arrangements are set up. All the flowers are of course wired, and are tied to the central one. Flowers are also extensively used for laying on the cloth, either with or without any method of arrangement. Good Orchids are most suitable for this purpose, and in any case only the best of flowers should be used. Of foliage

that is suitable for table work are various Ferns, Ivy, Ivy-leaf *Pelargoniums*, *Chrysanthemums*, *Carrots*, the autumn-tinted foliage of various trees, *Virginian Creepers*, *Coleuscs*, *Roses*, &c.

The decorator of tables will do well to bear in mind that his help is called in as accessory, and not by any means as of primary importance. The lights and necessary appointments of the table must always hold the first place, and no matter what form the disposal of flowers may take, they must always be held as subordinate to these. Working with these limits defined in his mind there is more likelihood of producing effective arrangements than by taking a view which places flowers first, and everything else in the second place.—B.

CHRYSANTHEMUM CULTURE.

I HAVE read with interest Mr. Shoesmith's paper on "Chrysanthemums for Exhibition," and he has produced wonderful stands of blooms, so that his advice is worth following. He mentions that there is an idea among some who are not successful that their more favoured brethren have some patent medicine wherewith they obtain such grand results, but I should say that idea generally is exploded. I remember when living at Emsworth, Hants, visiting a very successful grower of Chrysanthemums, and as it was dark we were shown them by candle light. We were a small party, and determined to find out what was used to produce such fine flowers, so one of our party felt the soil very carefully whilst we held the gardener in conversation; but judge of our mirth when coming to the light find the detective's face more like a nigger's than anything else. The grower had only been using a sprinkling of soot.—SYDNEY WHITE.

NEW PLANTS OF 1886.

(Continued from page 94.)

Infl., Inflorescence.—*L.*, Leaves.—*Fl.*, Flowers.—*Fr.*, Fruit.—*H.*, Hardy.—*H.H.*, Half-hardy.—*G.*, Greenhouse.—*S.*, Stove.—*Per.*, Perennial.—*Shr.*, Shrub.—*In.*, Inches.—*Lin.*, Line = One-twelfth of an inch.—*Ft.*, Foot or Feet.—*Diam.*, Diameter.—*Pet.*, Petals.—*Sep.*, Sepals.

N.B.—Unless specified, all Orchids may be considered to be stove epiphytes.

CYCAS DUIVENODEL. (*Cat. Comp. Cont. d'Hort.*, p. 9.) *S.* A fine Cycad, having a spiny trunk, covered with blackish brown scales, and pinnate l. 3-3½ ft. long, with crowded acuminate leaflets an in. broad. *Moluccas*.

CYMBIDIUM EBURNEUM, var. *PHILBRICKIANUM*. (*G. C.* xxv., p. 585.) *Orchideæ*. A white variety resembling *C. Parishii* in growth, with rather narrow sep. and pet., and the side lobes of the lip well apart from the narrower middle lobe; the callus is narrow, with a most obscure mid-keel.

CYPRIPEDIUM APICULATUM. (*G. C.* xxv., p. 617.) A hybrid between *C. barbatum* and *C. Boxalli*, with rather broad obscurely reticulated l. Fl. shining inside. Dorsal sep. cuneate oblong acute, reddish brown, with black-purple veins, and an ochreous margin; lower sep. oblong, acute, green with reddish-brown veins. Pet. somewhat spatulate, ciliate on the inner margin, light brown-purple, the lower half yellowish from middle to base, and there spotted with purple-black. Lip nearly like *C. Boxalli* in form, brown in front, greenish-ochre with small brown spots at the base. *Staminode* transversely oblong, apiculate, with a deep green knob in front. *Garden hybrid*.

CYPRIPEDIUM BARTETI and *C. LAFORCADEI*. (*G. C.* xxv., p. 532; *R. H.* 1886, p. 84.) Two hybrids between *C. barbatum* and *C. Chantini*, raised from the same seed pod. The two are much alike, but *Barteti* is the better of the two, having a broad dorsal sep. with a green ground flushed with rose, blackish-purple nerves, and bordered with white; pet. narrow yellowish, striped with reddish-brown, shining, conspicuously veined. Both are figured in the "Orchidophile." *Garden hybrids*.

CYPRIPEDIUM CALLOSUM. (*G. C.* xxvi., p. 326.) Something in the way of *C. Argus*, with a very large, transversely elliptic, acute dorsal sep. of a white colour washed with purple and having numerous green nerves. Lower sep. half as long as the lip, ligulate acute. Pet. ligulate, pendulous, green, purple on the top, ciliate, and marked with black shining warts on the margins and disk. Lip like that of *C. superbiens*. *Staminode* reddish, marbled with green. *Siam*.

CYPRIPEDIUM CONCOLOR, var. *CHLOROPHYLLUM*. (*G. C.* xxvi., p. 294.) A variety having the l. free from any marbling, and the fl. full of small spots.

CYPRIPEDIUM CONCOLOR, var. *REYNIERI*. (*G. C.* xxv., p. 362.) A fine variety, with large well marbled l. and yellow fl.; with a purple blotch on the outside of the sep.; the *staminode* is ochre clotted with purple, and has a white margin in front. *Cambodia*.

CYPRIPEDIUM GERMINYANUM. (*G. C.* xxv., p. 200.) A hybrid between *C. villosum* and *C. hirsutissimum*, resembling the latter in the fl. The dorsal sep. is oblong, undulate, green with a shining brown disk; pet. ligulate-oblong, spreading, green, and spotted with brown at the base, the broader front part purple; lip greenish-yellow, brown in front. *Garden hybrid*.

CYPRIPEDIUM INSIGNE, var. *ALBO-MARGINATUM*. (*W. O. A.* pl. 232.) A distinct variety, having the dorsal sep. yellowish green with a very broad white margin, spotted on the green part with brown; the pet. are tawny yellow with darker veins; and the lip is pale brownish, yellow inside. *India*.

CYPRIPEDIUM IO. (*G. C.* xxv., p. 488.) A fine hybrid between *C. Argus* and *C. Lawrenceanum*, with l. like those of the latter, and fl. resembling that of *C. Argus*. The broad dorsal sep. has the median nerves green, and the side ones purple; lower sep. small, green nerved; pet. brown at the tips. *Garden hybrid*.

CYPRIPEDIUM LAWRENCEANUM, var. *HYEANUM*. (*L.* pl. 42; *G. C.* xxv., p. 680.) A distinct form, having the veins of the large white dorsal sep.

green, and ciliated pet., and the lip entirely green. Syn. *C. Hye anum*. Borneo.

CYPRIPEDIUM LEEANUM. (*W. O. A.*, pl. 223.) A fine hybrid between *C. Spicerianum* and *C. insignis*, var. *Maulei*, very dwarf in habit. Dorsal sep. white, with a green basal area, and rows of purple dots on the nerves to about the middle; lower sep. light green, the nerves spotted with purple. Pet. oblong obtuse, wavy on the upper margin, light tawny brown, with darker veins, and a yellowish-green border. Lip brownish-purple outside, yellowish inside, with purplish veins. Garden hybrid.

(To be continued.)



KITCHEN GARDEN.

THE busy season in the vegetable department is now beginning. The state of the soil is against many operations being carried out with satisfaction, but we always prefer being too early rather than too late with our crops, and we never allow the slightest opportunity to pass without trying to advance as many crops and operations as possible. The general expression of "there is time enough to do this and that" does not find much favour with us, as we find all early vegetables so acceptable and valuable that they can never be pushed on too early, and although some failures occur with early crops there are many successes with them. We grow our early crops to begin with the London season in April; excuses then will never do, and we must have them in "by hook or by crook."

RADISHES.—Early Radishes are very acceptable on the table in the months of March and April, and they are very remunerative in the market at that season. Their early culture always pays, and as they are easily grown and sure of return their culture should be very general. A shallow gentle hotbed, with any rough frame and a glass light over them, will soon induce them to gain maturity, and a firm moderately rich soil suits them best. They should be near the glass, as it spoils them either to be drawn in a shady place or by being too much crowded. They are sometimes grown between other crops, and when not smothered succeed very well, but a small frame of them proves satisfactory.

PARSNIPS.—Many are in the habit of sowing their Parsnips early in February, and we have rarely known them fail when sown at this time; but they will do later, and the best way is to make two sowings, one now, and another six weeks hence. The soil in all cases should only be moderately rich, neither too heavy nor too light, and not less than 18 inches in depth. Turn it and break it well before sowing. Allow 18 inches from row to row, sow thinly 3 inches deep, and a good crop is sure to be the result. The soil at this time is generally so damp that it cannot be rolled, but if the surface becomes dry before the plants appear a good rolling to make it firm will benefit the roots, as they form best in a firm soil.

TOMATOES.—These are becoming more and more popular. If grown to fruit in April and May they are greatly appreciated, and where a few plants can be fruited early under glass they form an excellent addition to other vegetables. Where the young plants are a few inches high in the seed pots lift them all out and place singly in 3-inch pots. Give them a substantial rich soil, avoiding too much sand. Keep them in a temperature of 65° or 70° and near the glass. Sow a good quantity of seed to produce plants for culture in the open air. To succeed well with these they should be 1 foot or 18 inches in height at the time of planting out in May. Some scores of them may be raised in a shallow box. The seed germinates freely in any genial atmosphere, and the plants bear transplanting freely at all times. Spring-fruited plants should be repotted as is necessary until they are in 10-inch pots, then stop potting. Restrict them to one or two main growths at most, and do not let any water fall on the flowers when they are open. There are so many plants requiring house room in spring that a house cannot often be given to Tomatoes alone, but a pot of them placed here and there in a vinery, Cucumber pit, or any other house will produce a crop without any special expense.

CARROTS.—The early sown ones are now through the soil. They will not bear much exposure as yet, but a little air should be admitted to them on fine days, always tilting the lights on the sheltered side of the frame. As soon as the plants can be handled begin to thin them; premature crowding is ruinous. Cover them when it is frosty, but do not pamper them, as Carrots cannot be forced in this way. Make another hotbed and sow more seed. A two-light frame of young Carrots will last for many days in the kitchen, and unless for market they need not be grown in very large quantities under glass. Only the Horn varieties should be grown under glass. The soil should be rather rich, sandy, and firm, and always a little deeper than the roots are likely to penetrate. They will grow very freely now with the aid of a gentle hotbed, and a few should be grown in this way in every garden. Old Carrots become distasteful as the spring advances, but the young ones are tender and sweet.

CAULIFLOWERS.—Plants which have been wintered in frames and under handglasses should now be freely exposed to the weather on every favourable opportunity, as they will have to be planted in the open in a few weeks hence, and it is well to have them well hardened before

turning them out altogether. When they require water give them liquid manure, as this induces them to root freely quite close to the stem. Sow a quantity of seed of some early kind. We generally use shallow boxes for this purpose, and the young plants are taken from these and dibbled into frames in March and planted out in April. A batch of a main crop sort may also be raised in this way, as young Cauliflowers do not come away very fast if sown in the open ground until April, and then it is too late for a midseason supply.

LETTUCES.—Where young plants are growing in sheltered positions from seed sown last autumn stir the surface of the soil between them and remove any dead leaves. Sprinkle a little soot or artificial manure amongst them, to be washed in by the rain; shelter them from severe frost, and prevent them from being checked now. Where no plants of this kind exist sow seed at once. If the plan of sowing Cauliflower now is followed capital young Lettuce plants will be at disposal before long. Lettuces are exceedingly useful in spring and early summer, and a few scores of them should be grown as an early batch in all gardens. Early Paris Market is the earliest of all. It will surpass all others by a fortnight in its time of gaining maturity.

KIDNEY BEANS.—Do not neglect those in the early stages of their growth. If stunted when young they will never fruit well when older. Those sown in the early part of January should now be put into their fruiting pots. Our young plants are in little clumps in 3-inch pots, and three of these are transferred to a 9-inch pot for fruiting. They are not crammed into the centre, but are put as far as possible from each other round the sides, and the balls of roots are not broken. Rich soil should be used in potting them, and they may be potted very firmly. Keep them in a temperature of 65° or 70°, and give them plenty of water as soon as they begin to root freely. A large quantity of seed may now be sown in small pots, as by the time the plants from this are fruiting the days will be long and mild, and heavy crops will be produced. The seed for Easter Kidney Beans should be sown at once, and the plants will require to be grown rapidly to gain maturity by that time.

FRUIT FORCING.

MELONS.—Of primary importance in the cultivation of early Melons is a brisk bottom heat, and whether obtained from hot-water pipes alone or in combination with fermenting materials, or with the latter only, it should be lasting. Hot-water pipes are unquestionably the best, as they afford a regular and lasting heat, yet a very successful result can be had by the aid of fermenting materials alone if due regard be paid to their preparation. Stable litter and an equal proportion of Oak or Beech leaves are the best. They should be taken in hand about a fortnight before it is desired to make the bed, and thoroughly incorporated by throwing them into a heap, and if dry they should be moistened. In a few days it will be seen whether there is sufficient moisture to produce fermentation; if so, turn the materials before violent heat is produced, and damp and dry material; but in case the material is not heated quickly it must be turned after a few days and receive water as required. In making hotbeds always employ a good layer of faggots for the foundation, especially if the site be low and damp, and take care to provide a bed large enough for the season; 5 feet high at the back and 4 feet in front, with the material well beaten down, will not be too high. The frame or frames should then be placed on, and in four days or so level the bed if necessary, and place in the centre of each light about a barrowful of soil in the form of a flattened cone, the top about 1 foot from the glass. When the heat in the soil does not exceed 85° to 90°, place out a plant in the centre of each mound, unless the frame be large, when two plants may be placed under each light. Press the soil firmly around the plants, taking care, however, not to injure the stem, and place a little dry soot and quicklime around each plant to preserve them from slugs. The day temperature should be 70°, and 10° to 15° more from sun heat, losing no opportunity of admitting air to allow of the escape of rank steam or accumulated moisture; but in no case must the air be admitted so as to lower the temperature below 70°. The night temperature should be 65° to 70°. Instead of planting-out too soon shift into larger pots as required—a couple of sizes larger, plunging them in a bottom heat of 80° and near the glass, securing the stems to small stakes as the plants advance in growth. Plants for pits or frames should be stopped as before advised at the third leaf, whilst those for trellises should not be stopped, but the laterals must be removed up to the bottom of the trellis.

CUCUMBERS.—A favourable change in the weather has greatly assisted in the progress of Cucumbers. A little more moisture, both at the roots and in the atmosphere, may be allowed, and the evaporation troughs may be regularly filled in bright weather. A slight increase of the day temperature may also be permitted. Be careful in the admission of air, avoiding cold currents. Encourage free root action by the introduction of fresh compost from time to time. Pits and frames must now be thoroughly cleaned, after which bring in the fermenting materials. The treatment of Cucumbers and Melons is so similar as to temperature that what is stated of one will answer for the other.

PEACHES AND NECTARINES.—In the earliest house syringing will be required morning and afternoon to keep red spider in check. See that the outside border is well protected against the cold, and water the inside border with liquid manure, which will much assist the fruit in swelling, especially weakly trees long subjected to forcing. Vigorous trees will not require any stimulants, excessive vigour being unfavourable to the fruit safely passing the stoning process. When the fruit is the size of small marbles thinning may be commenced, but remove a few fruits only at a time, removing first those that are badly placed. Disbudding may be followed up, taking care to leave a shoot at the base

of each bearing shoot, and another at its extremity, or at a level with the fruit. The shoots retained for supporting the fruit should be stopped at the second or third leaf, but the basal shoots must be trained to take the place of those now bearing fruit. Shoots upon extensions must be left at 12 to 15 inches apart to form the bearing shoots of the future. The night temperature may now range from 55° to 60°, and 60° to 65° by day artificially, with an advance to 70° or 75° from sun heat.

The trees in the next succession house—i.e., that started early in the year, will require attention in disbudding, which should begin as soon as the shoots can be rubbed off or removed with the finger and thumb. Continue to impregnate the blossoms, and when the fruit is all set a gentle syringing in the morning and at closing time will assist in removing the remnants of the blossom. See that there is no deficiency of moisture in the inside borders. Where the fruit is too thickly set remove the smallest first, especially on the under side of the shoots.

In the house started early in the month syringing must cease when the blossoms show colour. Maintain, however, a good moisture by damping every available surface two or three times a day as the weather may dictate, avoiding a close stagnant atmosphere. If the blossoms are too thickly placed thin them by running the hand downwards on the under side of the shoots, which will strengthen the remainder, enabling them to set better.

Admit air freely to late houses, so as to retard the blossoming to a late period, especially in the case of unheated houses, which are liable to have the blossom injured by severe spring frosts; the later the trees blossom in such houses the better. See that the borders have water if needed, applying liquid manure to weakly trees.

PLANT HOUSES.

Alocasias.—The whole stock of these plants may be repotted and top-dressed without delay. Young plants, or those that were potted late in the year, will for the present only need the removal of the surface soil. This should be with fibry peat, lumps of charcoal, and a surfacing of living sphagnum moss. The compost should be packed well to the collar, which will induce the formation of surface roots. Those that were potted last spring must be turned out and the soil worked carefully from amongst their roots, and if in a very decomposed state they should be washed in tepid water. The pots or pans used must be liberally drained and the plants repotted in lumps of peat, charcoal, and coarse sand, avoid using sphagnum moss in the compost, for it decays so rapidly. Do not allow the collar of the plants to be too high above the rim of the pots, but leave ample room for a liberal top-dressing. After potting sponge the foliage, and be careful that no red spider becomes established upon them, for if neglected it will soon destroy the beautiful foliage of these plants. If possible, plunge them in slight bottom heat until they recommence growing and rooting. They should be kept in a close moist atmosphere, liberally syringed, but carefully watered until they are in active growth, when liberal supplies must be given them.

Anthuriums.—Such species as *A. crystallinum*, *A. Andreanum*, *A. ferrierense*, *A. ornatum*, *A. Waroecuanum*, *A. Veitchi*, and others of the same class dislike decomposed material about their roots. These may be top dressed or repotted as individual cases may demand. The soil and treatment advised for *Alocasias* will suit these well. After potting they become established again quicker by the aid of gentle bottom heat, but this is not essential, for they will do admirably in a temperature at night of 65°, with a rise of 5° by day. If done at once they will become established before the sun renders shading necessary, and will therefore have a long season before them in which to develop their large striking foliage.

Marantas.—If potting is delayed until the sun has gained considerable power they flag severely unless dense shade is employed, and are a long time before they are established again. Any plants that are to be increased may be divided with safety. The soil must be kept sweet and healthy about the roots, for although they require abundance of water during the season of growth, they cannot endure stagnation about their roots. Turn out those that do not need division and remove the old compost from amongst their roots, repotting them in a mixture of fibry peat, one-third good loam, charcoal, and a liberal quantity of coarse silver sand. The pots used should be liberally drained and the plants not raised above the rim, but plenty of room left for watering. Gentle bottom heat is a great advantage to them until they commence activity, and a warm moist atmosphere must be given them. The opposite treatment is ruinous to them. Be careful not to over-water these plants until they are rooting freely, when too much cannot well be given them.

Eucharis amazonica.—Plants that have matured the foliage thrown up with the flower spikes may now be repotted if this course is deemed necessary. These plants will succeed in the same pots for several years. The whole of our plants are grown in small pots, and are therefore annually shaken out after flowering and repotted. They are invariably done in batches, the largest bulbs selected and potted alone, while a few of the smaller are potted every season. By dispensing with a few of the oldest bulbs and growing on a few young ones, the stock is kept from degenerating. About four flowering bulbs are placed in a 5-inch pot, while double the number are placed in a 7-inch pot. A few crocks only need be placed at the base when grown in small pots, but where large ones are employed they may be filled fully one-third full, for the *Eucharis* is not a deep-rooting plant. They will do in almost any compost provided it is rich; we always use fibry loam, one-seventh of decayed manure, one 6-inch potful of soot to each barrowful of soil, a little charcoal,

and a liberal dash of sand. After repotting, give a good watering and syringe the foliage two or three times daily. If given moist warm conditions the plants will be rooting freely in a fortnight.

THE BEE-KEEPER.

PRACTICAL BEE-KEEPING.

WHEN a bee-keeper has once begun to keep a strict and true account of his income and expenditure a very elementary lesson in the practice of economy in the management of the apiary has been learnt. It seems to be thought by some eminent bee-keepers that there is no special necessity for economy in bee-keeping, but that by an indefinite multiplication of appliances and an imaginary and delusive increase in the yield of honey by the use of such appliances the industry may be rescued from the danger of falling to pieces on the breakers of cheapness and competition. My desire is to teach that for every shilling misspent no return ought to be expected; that each bee-keeper should think more than once before he makes large purchases of expensive hives and appliances; that every novice should at least begin with cheap hives and such necessary appliances only, as his common sense must tell him, after he has read the various papers on the subject, are most suitable for one in his position. A cheap hive is not a bad hive; far otherwise. When speaking of a cheap hive, I mean a hive so simple and free from complicated arrangements for the assistance of the bee-keeper and his bees, that it can be produced at a comparatively small cost. Such a hive is one containing ordinary frames and division boards, floorboard and a spacious roof—some 30 inches deep—in sectional parts. No arrangements for reversing, or working sections in the body of the hive, no elaborate section racks, no expensive feeders, but a simple hive of the most approved size and of good sound timber. A hive of this description ought certainly not to cost more than from 10s. to 15s., and no higher price must ever be given for any hive, if the aim of the purchaser is profit.

A straw skep of large dimensions is a most profitable hive, and when properly managed and well stocked with bees gives grand results. But a skep is now despised, and why? Mainly because it is cheaper in itself and does not require so many aids to management as the favourite bar-frame hive. It is the interest—the life's work almost—of the dealer and his friends to multiply appliances. It is our duty to warn those who are willing to take advice against making lavish purchases of appliances, which will never secure honey in more abundance or of better quality than could be, and has been, and is obtained without their aid. The increased yield of honey which we all desire must be produced by increased care and intelligence in management; by judicious selection of queens and drones; by sound autumn preparation; by giving up such fatal manipulations as "spreading brood," and by having every stock ready at the proper time to take advantage of the honey flow. When once the honey flow sets in every fine day lost before bees begin to gather surplus is a lessening of profit; every hour wasted in the height of the season means destruction to our hopes; here is the secret of success and failure. Those who have their bees ready to take advantage of the first and every following day of the great periodical honey flow insure success; those whose bees are not ready to work in supers lose every day a part of the yield which ought to reward them for their trouble.

To double a hive is but poor practice, but in some very late districts with an early honey flow it may be necessary. The real practical bee-keeper will in the autumn prepare his bees in a judicious manner, strengthening and feeding the weak, and in all ways attending to their wants; he will then await the result with confidence that if honey can be gathered during the first week of May in quantity his bees will gather it, and so on through the summer. He needs not to remove

his queen and ruin his prospects for another year to gain this season's profit; but by simply adopting an easy practical management during the autumn of the preceding year, he makes his own success in the following season. Yes! after all a bee-keeper does "make his own success!" The bees work, but the bee-keeper directs their efforts. He feeds, protects, and robs them; but when he has despoiled them of their sweets, gathered by generations of short-lived bees, he returns to them a sufficiency of good and wholesome food, protects them from their enemies, and insures them a queen to take the place of their weak and enfeebled summer monarch.

By such a management not only is the yield of honey increased, but the cost of producing this increased weight of honey is less than the expense incurred in producing the lesser weight by other means. Again, it cannot too often be pointed out that he who produces honey by the aid of expensive appliances, even if he sells his honey at a less cost than he incurred in producing it, is doing a material injury to those who look after their own interests, and not kind enough to make the consumer a present every time he uses a pound of their honey. If no honey came into the English market at less than cost price there would be a rapid rise in value, and those who produce now cheaply enough to combat the present low prices, would have a great benefit, but as long as tons of honey are thrown upon the market, and sold at less than cost price, the market will be glutted. Those whose honey costs, say, 10d. a lb. to produce, and who sell it at 9d., derive no benefit from its production, rather the reverse; but if all the honey sold under such conditions was withdrawn from the market, say next year, there would, in all probability, be a rapid rise in value. But how can we keep this honey from the market? It cannot be done, and therefore we must attempt to increase production, and, at the same, to raise the greater yield in future at a less cost than we have raised the smaller yield in the past. This can be done; and all ought by every means in their power to do their utmost to assist each other. How to do it must be reserved for a future issue, but if by discussing the subject thus broadly, even a dozen bee-keepers have been led to reconsider their position, the effort has not been made in vain.—FELIX.

MR. S. SIMMINS v. MR. J. HEWITT AND "A HALLAMSHIRE BEE-KEEPER."

IT seems, according to the *British Bee Journal*, page 597, No. 743, that Mr. Simmins presumes because I did not take on myself to eastigate him for his article on September 23rd, page 285, that I am gagged, and that he can go on saying and doing anything he likes. It is a pity this is so, for there is room for everyone, and plenty for everyone to discover or find out; but when a writer makes all his discoveries after someone else has published the same thing, and by dint of advertising, writing, puffing, and putting his own name to it, he places himself in an unenviable position, and a writer who labours for the advancement of knowledge and not his own personal profit, ought to be excused from answering such writers, particularly when articles based on careful experiments and much work disproving the claims he puts forth are quietly dropped in the waste paper basket by the Editor of the paper he writes in, with not even a word of excuse in the column devoted to "Answers to Correspondents." But as some are misjudging me, and drawing wrong conclusions, I will once more reply to Mr. Simmins, and unless he gives credit to the writers for the original discoveries he redresses, or tries to bury truth by misstatements, I shall not in future consider him worth a moment's thought. However, to the point of answering him.

DIRECT QUEEN INTRODUCTION.—Here he first of all called uniting bees, brood, queen, and combs—a process well known and described by every author under the name of uniting—Simmins' Method of Direct Introduction, and by dint of persistent advertising all novices who did or do not know better, thought he discovered the plan. For three years this was what he claimed, and after it had been questioned by various authorities, both on the question of novelty and efficiency, he redresses Mr. Pond's system, and calls it "Simmins' (No. 1) Method of Direct Queen Introduction." Already after twelve months' advertising many bee-keepers think it is the same as he has always been writing about, and after I have let a little light in he has practised the plan for the past five years, and refers to page 8 of his original pamphlet. I have the said pamphlet before me, and nothing is stated on page 8 about letting queens "run in alone," and had he found it such a reliable process in 1882 I think all intelligent persons will agree with me that he would have published it before 1886, and certainly all will agree that it would

have been more candid of him at least to have called it his "new" system, but now, he prefers to call it his "No. 2," and, therefore, I submit it is quite fair to charge him with attempting to foist on bee-keepers a system of recent birth in place of one registered in 1882.

I maintain it is no argument to assert that his system is preferred by bee-keepers to mine. Whether such is the fact or not does not concern me in the least; but if it is, allow me to point out that business men well know the value of continuous advertisements, and quack doctors know full well that any stuff will sell if only well advertised. My law is of more importance in the science of natural history than a dozen systems of queen introduction, as all intelligent persons will admit when we remember that all authorities, Mr. Simmins included, have always laid it down as an axiom that old bees, or those that have long been queenless, will not under any circumstances readily accept another. This teaching was believed by nearly all bee-keepers the world over twelve months ago; and what have I done to teach them the truth? Well, a short letter in the *Bee Journal* for 1883, page 83, where I first published the "Law." Since then I have sent others, also to the *American Bee Journal*, all of which appear to have been considered by the Editors as heresy, which, like perpetual motion and the philosopher's stone, was not to appear; and not until the *Journal of Horticulture* published it did I succeed in laying it clearly before the public, only to be ridiculed. As to whether I never let queens in from the top in accordance with the "Law" until after Simmins' last pamphlet was published or not, can be answered by some of the Editors looking through their rejected contributions, particularly one sent to the *American Bee Journal* in the fall of 1885. I have mostly let queens run in at the entrance when warm enough day or night, and when chilly I always drop them in from the top day or night.

The "Law" is to be tested, I see, next season by such a reliable authority as the Rev. Geo. Raynor, and no doubt others will do the same. I have not a penny to gain by it any way, not even as an advertisement, having been obliged to adopt a *nom de plume*, because the public classed me with Mr. Simmins and thought I must have something to sell, and seemed determined to know what it was. All I have to gain is a good word, and he who would rob me of this enriches not himself, but would make me poor indeed.

FEEDING DRY SUGAR.—Mr. Simmins, in the *Journal* for September, adapts his usual style of misstating facts, and then demolishing them. Here is a sample. "Mr. Hewitt knows as well as I can tell him that it was not until after his theory had been advanced that I made any mention of the subject, and my letter will be found in the *British Bee Journal*, vol. xi., p. 195." Please note the above extract well, and turn to page 98 of the same *Journal* and volume, from which I make the following extract, signed John Hewitt:—"Mr. S. Simmins condemns 'candy' for bees. I hope bee-masters will give this article careful study. I am of opinion it will prove in the future more valuable than foundation. I have not had much experience with it so far, but I may say what little I have has opened my eyes very wide indeed." Mr. Simmins' letter condemning candy or hard dry sugar will be found on page 66, and all the rest of the correspondence was on these lines, simply giving all the information I could; none of which would probably have been given had not Mr. Simmins first condemned such food, though he says the converse is the fact; anyhow, readers can see for themselves. Then he says, "Mr. Hewitt conveniently forgets that no letter of his, in defence of his theory, appeared in the *British Bee Journal* after my own condemning the same was inserted." But there is though, which is to be found on page 197, his last letter being on pp. 195-6. This may be put down as a quibble on my part, but mind he says no letter of mine appeared *after* his own, and at the end of my letter, on page 197, is an intimation by the Editor "that the correspondence on the subject should now be brought to a close." Very honourable this of Mr. Simmins, when he knew I could not make further reply. In this article I do honestly and candidly give credit for what belongs to others; what I claimed and what I still claim is the fact (which I settled by experiment, guided by scientific knowledge) that bees can eat hard crystallised sugar without any water, providing the crystals were sufficiently small; and to get them thus I reboiled and recrystallised the sugar to get the crystals small enough. Mr. Simmins talks big about "uncooked" sugar; perhaps he does not know that sugar can no more be "cooked" or altered under the boiling point than sand can. You may alter its form, turn it into syrup, crystals or toffee, and from any one of these into any of the other; it obeys all the laws of crystallisation. Remove its water to 50 per cent.; on cooling it sets into a clear ice-like substance, corresponding in fact to ice; aerate it, and it crystallises, corresponding to snow; pour this out in a semi-fluid state, and we have "candy," and he perhaps also does not know that if a small bit is broken off any crystal and placed in a saturated solution of its own substance, it will always first replace the bit broken off before growing larger; and, again, no crystal will dissolve on only one part of its surface, or quicker than on another side. The knowledge of these facts has led to the success in queen mailing, and if for no other reason I can with pride point to that controversy in 1883 on dry sugar as food for bees; for dry as sugar looks, the dryest is just one-half water, and after being assimilated in the body of the bee, is thrown off in perspiration, saliva, &c.

He also insinuates that I did not succeed in wintering my bees on hard sugar. Well, for one difficulty, I found my bees had gone to the moors, nearly seven miles away, and filled their combs with honey, which I could not extract; and if he had turned to page 52 for February, 1884, he would have seen I had my hives blown over on

January 12th, and in same bees were all chilled, and though only one hive withstood the gale, which blew 6,000 trees down in one park near, I wintered three on candy and two on honey stores, the rest never getting over the gale, which were mostly on honey stores, being impossible to provide empty combs for all. But in issue for May 15th, page 169, vol. xii., is a letter signed "Honey Bee," stating how he got some driven bees in November and packed them up on candy made according to my directions, and six sheets of foundation, and how well they wintered. At the end of the year I received a letter from a elergyman, who said he was the writer, and he said they had given him 40 lbs. of honey, having done better than any of the others, and that he always alluded to it as "Hewitt's stock."

On June 1st Mr. S. Simmins, under the heading "Another Point Gained," page 188, says, "For some years past I have striven to solve the problem of feeding dry sugar to bees, and at last I am pleased to be able to record that I have a system of stimulative feeding which enables me to give the sugar in such a manner that there is not the slightest waste. . . . The Porto Rico sugar is to be used only in spring and for producing young bees in autumn, but for winter stores the best grade of Demerara will answer admirably." Let all compare this with his consistent declaration as follows:—"I wish it to be distinctly understood that I have on no occasion advised my plan for winter feeding, neither do I recommend feeding in winter in any way." If this is so, why did he mention "winter," and actually the very kind of sugar that I had directed candy to be made from? a sugar quite different to the Porto Rico to be used in spring and autumn, thus taking for granted that they lived on honey in summer we have the whole year provided for; also compare the extracts with what is published on June 15th and October 1st previously, particularly the latter, and I venture to think his years of experiment, autumn and spring experiences will be considered by every person with the least intelligence as so much "humbug," and had not "Honey Bee" published his success with my plan we should not have heard anything from him about feeding dry loose sugar. He says "that there is not the slightest waste." It so happened that I had gone over the ground of loose sugar in my experiments, and I found that bees would carry every grain of sugar out of the hive "to grass" if it was not small enough for them to dissolve, and that whether they had water, moisture, or vapour they could not use "the best grades of Demerara sugar." I wrote an article to the Editor of the *British Bee Journal*, setting forth these facts, and pointing out if one would fix a sheet of glass in front of the hives, slanting towards the hive, with a trough under, so that the bees would hump against it and drop in the trough, they would find that they were carrying out a large proportion, if not the whole of it; also that it was only a very wasteful imitation of my plan. Such letter, I regret to say, was never published. It is surprising to what extent bee-keepers have been led to believe that because the sugar went the bees were surely eating it.

Here let me state that I now believe that no system of feeding will pay unless done to save your bees from dying, and that I am convinced as much as ever I was of the value of candy as bee food; in fact when properly done it is the cheapest and best way of feeding bees, but since 1883 I have always sent my bees to the moors, where they get their winter stores for nothing; but I still keep experimenting, and when I am satisfied that I can depend on receiving due credit for my work I may publish the results. As to his assertion that no practical bee-keeper was surprised at no result being published, is about equal to the rest of his statement. Can I be blamed if the Editors will not publish my letters on the subject? Whether to oblige Mr. Simmins or not I neither know nor care, the fact remains, however, but still he will find a letter of mine very much "cut" in the *British Bee Journal* in the autumn of 1885, which at least disposes of his "silence" plea; in fact, it was because my letters were suppressed on this very subject that I dropped writing on other subjects in the *British Bee Journal*.

MR. SIMMINS AS A TRADER.—He says, "Mr. Hewitt is fully aware that I have not advertised my feeders for sale, and that he should say that I have done so cannot be wondered at, considering the heedless expressions of which he seems capable." Oh! he has never advertised them, nor the rest of the "Simmins" appliances either has he? Who was at the expense of engraving the blocks which illustrated the feeders, &c., in the *British Bee Journal*? Who paid for registering the different things in Mr. Simmins' name? What is the meaning of several hive manufacturers advertising "By authority—makers of Simmins' hives, crates, sections, feeders, &c.?" Does he mean to imply that he gets no profit from such advertisements, either in the shape of appliances or cash? I assert that in consideration of his influence in sending trade to these people he gets well paid by them, and I challenge him to prove otherwise, and this he does while pretending that all he does is for the good of others.

We have seen how Mr. Simmins honours (?) me. Now I will just show how he treats others. Let us turn to *B. B. J.*, page 83, for March 1st, 1885, where we find an article signed, F. Lyon, and headed, "Making a Solution of Sugar without Boiling." The writer neither claims or implies to be the discoverer, but seems to have used it, or known of it for some time. The information he gives is clear and concise, and in my opinion nothing more is needed; but for April 1st, Mr. S. Simmins, page 115, has a long article, headed "A New Syrup Feeder, which Dispenses with Syrup Making," where he claims all the credit of discovering this particular principle of making syrup, which is suspending the sugar in a very porous holder in the water, and describes three feeders which he says he has invented, which he says can be

obtained from certain people whom he names, and which he implies are necessary to success. He has directed much attention to this system, and has added a number of other feeders designed on the same principle, some of which I note are registered, and I do not suppose one in a hundred of the readers of the *B. B. J.* have any idea that he was not the first to describe the principle.

In the issue of the *B. B. J.* for May 15th, 1885, page 174, a querist, signed "B.," wants to know if the sugar and water cannot be mixed in any vessel (say an extractor or wash tub) and then poured into any syrup feeder. That is according to Mr. Lyon's plan, for as he gave it, all that was necessary was to hang the sugar in a coarse bag in any vessel put in the water, and next morning or so fill the feeders with the syrup, thus no extra appliance is required. This correspondent grasps the principle, and wants to know why the necessity of Mr. Simmins' "latest feeders" in carrying it out; but Mr. Simmins in reply quietly ignores what he asks, and with the greatest audacity implies that his new feeders are absolutely necessary, saying, "Besides no other vessel or feeder can possibly act in the same manner." Can any transatlantic friend match this assertion?

In most of the cases I have quoted we find that Mr. Simmins has been anticipated two or four weeks. These I have given from British publications, so that less difficulty will be experienced by most who read this in referring; but I can give a number from the American bee papers anticipating him in his so-called discoveries. No doubt he will say that he discovered all independently, and that they are only illustrations of two separate parties each discovering one thing. He may do so if he likes. I, for one, do not believe in so many contemporaneous discoveries, nor will anyone else quite do so I think; but if he wished to honour those who had preceded him in publication, he would have mentioned them, giving them credit for what they had done. Such writers ought to be treated as they deserve by every editor. There is no means of proving what they say except by inference, and every honest worker after truth is deterred from publishing what he discovers, because it will be put in fresh clothes and palmed off as another person's labour, and the original discoverer robbed of all the credit.

I have written at some length in the hopes of being able to improve the morals of the "miners" in apicultural knowledge.—A HALLAMSHIRE BEE-KEEPER.

PUNIC OR TUNISIAN BEES.

It will be remembered that I had not opened the hive of these bees since November 23rd on account of the cold frosty weather. January 17th here was the coldest day, so far, this winter. On the 19th the mercury went up to 55° with a bright sun—result: bees swarmed out from every hive except the Punic stock. I was again surprised at this, and so went and turned up each four corners of the quilt, to find every seam full of bees; thus it will be surmised that having flew just when they required to there was no necessity to fly for nothing.

On the 28th ult., being again very warm, snow all gone, sun brightly shining and no wind, I opened them once more. I found they had decreased in numbers from November 23rd, but were still very strong, there being a good cluster of bees in each of the five combs, including the front and back seam next hive walls; not a dead bee to be seen, nor a speck of excreta. One frame was three parts full of eggs and larvæ about two days old, but no sealed brood, and they had also ample stores. Comparing them with the other stocks I am more than satisfied. I have now settled it that they can stand 10° Fahr. more cold than our native bees. This will be found an enormous advantage, as it will give them the power to take a cleansing flight almost any day in our winters, and breeding with immunity in cold weather will give strong stocks in time for the earliest flowers. Judging so far, I think they will be ready to swarm at the end of March. I will keep reporting their doings from time to time.—A HALLAMSHIRE BEE-KEEPER.



* * * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

TO CONTRIBUTORS.—Our friends who favour with communications on controversial subjects will oblige by sending their articles as soon after they receive the Journal as possible. Our space is practically filled on Monday, and only articles that are "expected," and which arrive on Tuesday, can, as a rule, be inserted in the current issue.

Books (G. W. G.).—We doubt if there is any book published such as you appear to require, and a work so comprehensive and yet so full as your letter suggests could not be produced at what you might consider a "moderate" price. Sound details for the culture of all the most important crops of fruit and vegetables, also chief flowers and plants, are given in the "Cottage Gardener's Dictionary," which can be had from this office, price 7s. 6d., post free 8s. 3d. (D. E. B.).—Copies of the second edition of Mr. Molyneux's work can now be had. Mr. Iggulden's manual on the "Tomato" is not out of print, but on sale at this office.

Copyright in Engravings (H. M.).—The statutes 8 Geo. II. c. 13, and 7 Geo. III. c. 38, vest the sole right and liberty of printing historical and other prints in the persons who invent and design them, or cause them to be designed and engraved from their own works and inventions; and impose penalties upon all persons who in any manner copy or sell in the whole or in part from such prints or designs, without the written consent of the proprietor attested as therein mentioned. The copying of prints and engravings by photography, or by any other process, is an offence within the statute; and so also is the selling of a copy with colourable variations. The author of any original painting, drawing, or photograph has sole and exclusive right of copying, engraving, reproducing, and multiplying such drawing and the designs and negative thereof, by any means and of any size, for the term of the natural life of such author, and seven years after his death. But on the author selling any such drawing, he is not to retain the copyright unless expressly reserved to him by agreement in writing (25 and 26 Vict. c. 68).

Fancy Pelargoniums (A Weekly Subscriber).—Mr. Garner's notes on page 95, last week, which had not appeared when you sent your inquiry, will be of service to you. The varieties there named are not, however, true "fancies," but fanciful or decorative forms of the stronger growing show section. Rather lighter soil is better for the small or real Fancy Pelargoniums, especially in their early stages of growth. Further notes on culture will probably appear in an early issue.

Late Grapes (A Constant Subscriber).—It would have been better if you had stated your object more definitely. Gros Colman, Lady Downe's, and Mrs. Pince will keep more than a month after Christmas. So will Black Alicante, which if crop and colour are esteemed of more importance than quality, would be preferred by many to Mrs. Pince. Muscat of Alexandria is often kept fresh till the present time, so is Mrs. Pearson and White Tokay. Not knowing your conveniences for growing Grapes, nor whether for home use or market, we name a few each of black and white varieties from which you can choose.

Disa grandiflora (G. S.).—A great point in the culture of this handsome terrestrial Orchid is to keep the plants steadily growing through the winter. The most successful cultivators, therefore, divide and repot when the plants are pushing up fresh growths after flowering as in early autumn. As you have not done so you had better carry out your proposition, but it would probably be better to place three tubers in a 6-inch than one each in smaller pots, as the larger mass could be kept more uniformly moist. Nearly half fill the pots with drainage, and in very fibrous peat with all loose soil particles shaken out, broken charcoal, and sand. Pack this carefully round the roots, and finish by rounding the material off a little above the rims of the pots, giving a surfacing of pure sand. This *Disa* is a swamp plant, and must also have plenty of air, avoiding sharp currents, and though regular moisture is essential, the roots will not work freely in a sour medium, hence the desirability of liberal drainage. Light without direct sun in summer is also essential, and the pots should stand on a damp base, and be frequently syringed in dry weather. They succeed in greenhouse temperature.

Rhododendrons (H. R. W.).—These shrubs grow very well in strong loamy soil if it does not contain lime. We have seen them luxuriate in the heaviest of loam, approaching clay, but in planting in such land it is most desirable to collect some lighter soil, including leaf mould, for placing in contact with the roots. They do not grow well where the subsoil is dry; neither must it be saturated and sour. If this is the condition of yours by the side of the pool it must be drained to the depth of 3 feet. We should not pare off the turf, but have it well dug in, chopping it up and keeping it from 6 to 18 inches below the surface. Leaf mould, decayed vegetable refuse, old tan, or sawdust would be better than rich manure for such land, and you cannot very well apply too much of those ingredients. We know of Rhododendrons growing in the most satisfactory manner in a mixture of half clay and half sawdust. A few hardy Azaleas look very well amongst Rhododendrons, but the association is purely a question of taste. The ground should be kept free from weeds by hoeing periodically to prevent their growing, that being much better than waiting till they become obtrusive, then having to spend much time in subduing them; and it is injurious to both Rhododendrons and Azaleas to dig deeply amongst them.

Mosly Bug on Vines (Homo).—If, as we understand from your remark of cutting the crop "ripe and unripe," you cut back the laterals in a green state, or when the sap was still active, that alone would weaken the Vines, and the strong insecticides applied at the same time could scarcely fail to injure them, though the dressings would have done no harm to rods in a dormant state, or after the Vines had been pruned early in winter. There has been a great lack of observation in allowing the Vines to be so seriously infested before the adoption of remedial measures. We do not accept the "sudden arrival theory" of the plague of insects. There were some in the house long before you saw them; nor do we even remember hearing of the adoption of such a policy of recklessness as your letter discloses. The Vines are probably ruined, first by neglect, then by violent action. Had the winter cleansing been as thorough as you represent, and the rods dressed with a mixture of tar and pounded clay, the Vines would not be so infested as they now are. You cannot apply strong insecticides after the Vines

start into growth, and all you can do is to have recourse to frequent and heavy syringings to subdue the pest as well as you can. Mere light syringings will be of no use, but thorough drenchings will do good just in proportion to the manner in which the work is done. We are sorry you did not write to us before on this subject.

Depressing Vine Rods (F. J.).—It is not "always" necessary to depress Vine rods to secure an even break. We have Vines, not forced, that have not been "depressed" for twenty years, and the rods in the great vineyard at Chiswick remain trained up the roof constantly. When Vines are forced into growth early they generally break more regularly when trained horizontally for a time. The sap has a natural tendency to move directly upwards, hence the disposition of the buds near the top of a Vine to start first, and this is further induced by the house in which they are trained being warmer at the top than at the base of the rafters in the absence of special care in ventilation. The branches of trees on walls are more or less depressed except in the case of vertical cordons, and these, as a rule, are not so well furnished with healthy spurs at the base as nearer the top, the growth of diagonal cordons being more uniform from base to summit because of the depression. The buds at the base of your Raspberry canes that are trained upright to stakes do not push so quickly, grow so strongly, nor bear such fine fruit as those near the top of the canes; and similarly, if your Roses make strong shoots, 4 feet or more long in the summer, and these are neither depressed nor shortened, many of the lower buds will remain dormant; but if you peg the long shoots down the bursting of the buds will be far more uniform. If your Vines break regularly without bending down the rods let them alone; but if they start at the top first, the lower buds remaining dormant, you will find the advantage of depression.

The Gardeners' Royal Benevolent Institution (W. S.).—Your letter we have read with pleasure, but not quite pleasure unalloyed. It is the letter of a thoughtful, prudent gardener, who by frugality has been enabled to bring up and fairly educate a large family, and also save a "few pounds," but not nearly sufficient to provide the plain necessities of life in the event of inability to labour for a few years in the event of life. There are no numbers of men similarly circumstanced. Though they have striven to the utmost, their small means, and the great demands on them, have prevented anything like a satisfactory accumulation of savings to place them in a position to regard the future cheerfully. It is for such men that the excellent institution referred to was established, and many aged gardeners and the widows of gardeners are now sharing in the substantial benefits it has dispensed. These benefits would be greater, or shared in by a greater number of necessitous persons, if gardeners generally who could save "a few pounds" subscribed a guinea a year to its funds, or paid ten guineas as a life donation. You are one of those who have failed to adopt either method, and now ask if, by a payment of ten guineas, a "guarantee" could be given you by Mr. Cutler that you or your wife might "rely" on being placed on the pension list if in want. Obviously no official of the Society could give any such guarantee, no individual having the power to do so. The Committee alone decide on the merits of the cases that are placed before them. Applicants who have subscribed to the funds have, and we think rightly so, favourable consideration; this, too, appears to be your view, as you say, "Unless I did something for the Institution I could not expect to receive from it." The case, therefore, resolves itself to this—If you do not subscribe there is very remote chance indeed of your obtaining a pension, in fact, no chance against an applicant equally needy who has, as you say, "done something" for himself. We can only say that the payment of the sum named would entitle you or your wife to the benefits at disposal, in the absence of more pressing claims from other subscribing candidates; but we can give you no assurance of obtaining a pension whenever you may apply for one; and the more subscribers there are to the funds the greater the power and the pleasure of the Committee in increasing the number of pensioners.

Names of Fruits.—The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and surplus fruits beyond that number cannot be preserved. (*Philomelos*).—1, Verulam, an excellent stewing Pear. 2, Knight's Monarch. The Worcester Pearmain Apples are remarkably fine, and we agree with you that this variety is something more than a cooking Apple. These of yours are the finest we have seen, and are quite fit for the dessert. Grown to that condition they would be a formidable rival to the Americans. We should be glad to have remarks on your experience of grafting Pears on the Hawthorn.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (*Constant Reader*).—1, *Habrothamnus fascicularis*. 2, *Eupatorium riparium*. (*J. E. R.*).—*Coclogyne ocellata*. (*F. H. A.*).—*Alonsoa Warscewiczii*.

Bees Dying (W. S.).—A stock such as you describe is not fit for wintering. With three frames of sealed honey at the end of October, and only four frames in the hive, it was surely not necessary to feed. In such a stock there could have been but few bees, and although these small stocks do occasionally come safely through the winter, they are never so profitable as those which have been properly prepared in due season. You say that "up till last Wednesday they appeared safe, for a quantity of them appeared above the carpet covering, the bottle being half full of syrup;" but you surely do not mean to say that there was an open space at the top of the hive through which the bees could pass? If there was such a space the cause of death is sufficiently clear. To so small a stock a night's exposure in "rough wet" weather, owing to the roof of the hive being blown off, would also most certainly prove fatal unless great care was at once bestowed upon hives and bees, and even then they would quite probably succumb. How many dead bees there were when you first discovered that the stock was

dead you do not say; nor do you tell us whether the comb was damp and mouldy or in good condition. You do not say if the honey left for wintering was in a liquid state or granulated, and you also forgot to mention whether the syrup was in a fit condition for bees to eat at the time the stock died. In the absence of these particulars we presume that the loss of the stock was due to draught and exposure, which, by reason of its small population, it was less able to withstand than a stock strong in numbers would have done.

COVENT GARDEN MARKET.—FEBRUARY 9TH.

MARKET quiet. Grapes making better prices, as also good samples of home grown Apples.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples 1 sieve	2	0 to 5	Melon each	0	0 to 0
" Nova Scotia and			Oranges 100	6	0 to 12
Canada, per barrel	10	0 13	Peaches per doz.	0	0 to 0
Cherries 1 sieve	0	0 to 0	Pears dozen	1	0 to 2
Cobs 100 lb.	60	0 to 70	Pine Apples English .. lb.	1	6 to 2
Figs dozen	0	0 to 0	Plums 1 sieve	1	0 to 2
Grapes lb.	1	0 to 3	St. Michael Pines .. each	2	0 to 5
Lemons case	10	0 to 15	Strawberries per lb.	0	0 to 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes dozen	1	0 to 0	Lettuce dozen	1	0 to 1
Asparagus bunch	0	0 to 0	Mushrooms punnet	0	6 to 1
Beans, Kidney per lb.	0	6 to 1	Mustard and Cress punnet	0	2 to 0
Beet, Red dozen	1	0 to 2	Onions bunch	0	3 to 0
Broccoli bundle	0	0 to 0	Parsley dozen bunches	2	0 to 3
Brussels Sprouts .. 1 sieve	2	0 to 2	Parsnips dozen	1	0 to 2
Cabbage dozen	1	6 to 0	Potatoes cwt.	4	0 to 5
Capiscums 100	1	6 to 2	" Kidney cwt.	4	0 to 5
Carrots bunch	0	4 to 0	Rhubarb bundle	0	2 to 0
Cauliflowers dozen	3	0 to 4	Salsafy bundle	1	0 to 1
Celery bundle	1	6 to 2	Scorzonera bundle	1	6 to 0
Coleworts doz. bunches	2	0 to 4	Soakale per basket	1	6 to 2
Cucumbers each	0	3 to 0	Shallots lb.	0	3 to 0
Endive dozen	1	0 to 2	Spinach bushel	8	0 to 4
Herbs bunch	0	2 to 0	Tomatoes lb.	0	6 to 1
Leeks bunch	0	3 to 0	Turnips bunch	0	4 to 0

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Abutilons 12 bunches	2	0 to 4	Lily of the Valley, 12 sprays	0	9 to 1
Aran Lilies 12 blooms	4	0 to 6	Marguerites 12 bunches	2	0 to 6
Azalea 12 sprays	0	6 to 1	Mignonette 12 bunches	4	0 to 6
Bouvardias per bunch	0	6 to 1	Narciss. Paper-white, bunch	0	4 to 0
Camellias 12 blooms	2	0 to 4	" White English, bunch	1	3 to 1
Carnations 12 blooms	1	0 to 3	Pelargoniums, per 12 trusses	0	9 to 1
" 12 bunches	0	0 to 0	" scarlet, 12 trusses	0	6 to 1
Chrysanthemums 12 hches.	0	0 to 0	Roses 12 bunches	0	0 to 0
" 12 blooms	0	0 to 0	" (Indoor), per dozen	1	0 to 2
Cornflower 12 bunches	0	0 to 0	" Tea dozen	2	0 to 4
Cyclamen 12 blooms	0	4 to 0	" red (French) dozen	2	6 to 3
Dablias 12 bunches	0	0 to 0	Parma Violets (French)	6	0 to 7
Epiphyllum doz. blooms	0	6 to 0	Poinsettia 12 blooms	4	0 to 6
Eucharis per dozen	4	0 to 6	Primula (single) per bunch	0	4 to 0
Gardenias 12 blooms	12	0 to 24	" (double) per bunch	1	0 to 1
Hycinth. Roman, 12 sprays	1	0 to 1	Stocks, various 12 bunches	0	0 to 0
" 12 sprays	4	0 to 6	Tropæolum 12 bunches	1	6 to 2
Lapageria, white, 12 blooms	2	0 to 4	Tuberose 12 blooms	2	0 to 4
Lapageria, red .. 12 blooms	1	0 to 2	Tulips doz. blooms	0	9 to 1
" longiflorum, 12 blms.	0	0 to 0	Violets 12 bunches	1	6 to 2
Lilac (white), French, bunch	6	0 to 8	" Czar, French, per bunch	2	0 to 2

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi .. dozen	9	0 to 18	Ferns, in variety .. dozen	4	0 to 18
Arbor vitæ (golden) dozen	6	0 to 9	Ficus elastica each	1	6 to 7
" (common) dozen	6	0 to 12	Foliage Plants, var. each	2	0 to 10
Azalea per dozen	24	0 to 36	Hyacinths per dozen	6	0 to 9
Begonias dozen	4	0 to 9	Lilies Valley dozen	18	0 to 24
Cineraria per dozen	9	0 to 12	Marguerites Daisy .. dozen	6	0 to 12
Cyclamen dozen	12	0 to 24	Myrtles dozen	6	0 to 12
Dracæna terminalis, dozen	30	0 to 60	Narciss (various) .. dozen	12	0 to 15
" viridis dozen	12	0 to 24	Palms, in var. each	2	6 to 21
Erica, various dozen	9	0 to 12	Primula sisensis .. per doz.	4	0 to 6
Euconymus, in var. dozen	6	0 to 18	Solanums per doz.	9	0 to 12
Evergreens, in var. dozen	6	0 to 24	Tulips per doz. pots	6	0 to 9

unglazed clay pipes tempered, dried, and burnt in a kiln just as bricks are. The pipes have no sockets, but are quite plain and uniform in size, and are laid end to end throughout the entire length of the drain. For all branch or tributary drains the pipes are 2 inches in diameter, and we may mention here that when the diameter of a drain pipe is given the measurement is taken inside the pipe. Tributary drains are made from the highest to the lowest sides of a field, and either empty into a ditch or are connected with a main drain of 4 to 6 inches in diameter, which in turn empties into the nearest accessible outfall. The tributary or branch drains are therefore those into which the superfluous water of the soil first enters to be conveyed to the main drain or ditch, whence the water flows to a pond or watercourse in a valley.

The best form of drain is so excavated that the bottom of the trench is just wide enough to receive the pipe. Especial care is also taken that the bottom has an even clean slope from end to end of the drain, be it tributary or main. This point is the most important of all, for if the bottom is uneven how can the pipes be well and truly laid? And, moreover, if the pipes do not form one practically continuous tube gently sloping from the highest to the lowest end without

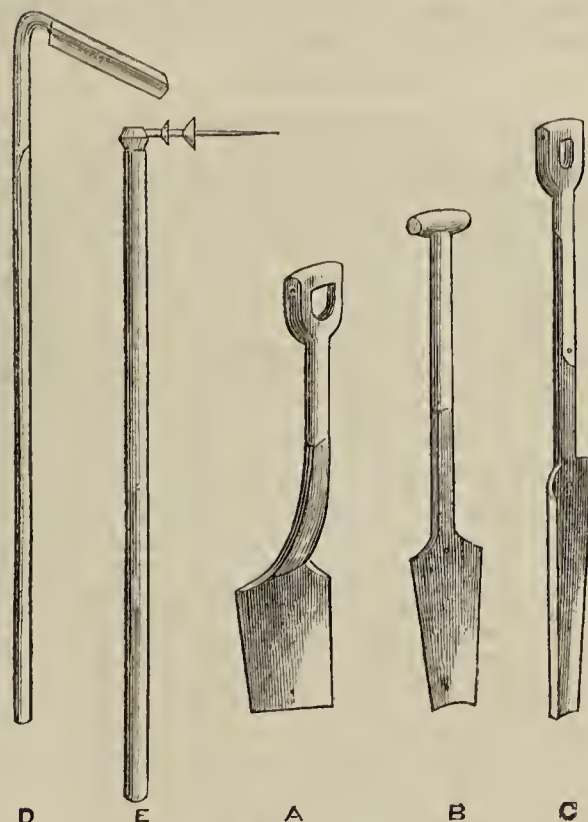


Fig. 20.—Draining Tools.

obstruction of any kind, how can the water flow quickly and constantly away from the soil? Will "Perplexed" and other beginners try and grasp this fully? for if they only do so they will have done much towards a full comprehension of the manner in which the work should be done.

Upon grass land the drain is staked and lined and marked out with an ordinary garden spade, by means of which the turf and top spit of soil is also removed. But on arable land the line of each drain is marked out by means of a plough, the soil being turned aside on either hand as deeply as possible, so that when a shallow 22-inch drain is only required the draining tool and scoop finishes the work. These draining tools are known as Birmingham spades, and are made narrow and tapering, so that the bottom of the tool leaves the trench just wide enough to afford space for the pipes, the soil crumbled by the bottom of the spade being scraped out by means of a scoop. Like the spades these scoops are made of different sizes, and upon application to any ironmonger samples of such tools will quickly be forthcoming. The intelligence and good sense of our readers will soon show them which of the tools are best adapted for their particular use. It will be obvious that for a 22-inch drain a short spade



SOIL LESSONS.

A REQUEST by "Perplexed" for information about land drainage and the tools used in doing it, is a not unpleasant reminder of the fact that the circulation of the Journal is constantly increasing, and that our new readers may value many a practical hint with which older subscribers are perfectly familiar. We purpose, therefore, in this paper to explain the details of a process which, however simple and easy to comprehend, may present difficulties to a beginner which we earnestly hope our hints may enable him to overcome.

A land drain in its best form consists of a single row of

will answer best, while for drains 3 or 4 feet deep two long narrow tapering spades of different widths will be required.

Always begin the digging of a drain at the lower end, in order that water may escape and leave the trench open for the pipes, as well as showing that the bottom of the drain is made true and at the required gradient. Let the line of each drain be fully excavated before any of the pipes are laid, and if it is thought necessary test the bottom with water before putting in the pipes. Let all possible care be taken with this work, for upon it depends very much of our subsequent success with our crops. Great care is requisite in covering the pipes; so important do we consider this that we invariably put one of our best men to do it. He has to put about 6 inches of soil above the pipes; then, and not till then, do we consider it safe to allow the other men to fill the trench. It may be thought that we are over-particular, but we can assure our readers that dear-bought experience has shown us the importance of such care as we advise. Left to themselves, workmen who make drains by the perch open the trench at the bottom to the required depth, put in the pipes, and cover them with soil from the trench. The entire work is thus done as they proceed, but it is almost always done badly, and a very brief experience of results showed us that we dared not trust an ordinary workman thus to conceal his faults and "scamp" his work.

(To be continued.)

WORK ON THE HOME FARM.

The lambing season is now fairly upon us, and the lambs have been falling at the singularly uniform rate of half-a-score in twenty-four hours. They are strong, vigorous, and lively, as we had reason to expect they would be, for the ewes have been well fed since the last season, and at no time have they been suffered to fall off in condition. The importance of such careful treatment cannot too strongly be insisted upon, tending as it does to afford profitable results in the pleasing guise of fine lambs and healthy ewes. The dietary of the ewes now is as many mangolds each morning as they can consume at once and no more, chaffed hay and barley or oat straw well mixed, and crushed oats. We are using no cake this season, nor as yet have we used any bran, but if there is the slightest sign of a deficiency of milk some bran will at once be added to the oats. The quality of the roots is so excellent that we have no doubt our dietary will answer, especially as we have plenty of grass close to the fold. So far we have had no difficult cases of parturition, but the shepherd has a supply of the necessary specifics for any cases for which they may be required. For severe straining with throes of long duration we use a tablespoonful of equal parts of brandy and spirits of nitre, mixed with two tablespoonfuls of a strong infusion of ergot of rye. If the lamb be alive and in its natural position it will then soon be born, but if it is dead it may have to be removed. In this and in all cases of severe straining, carefully wash the vagina with warm water after the lamb is withdrawn, and syringe the uterus with carbolic oil, which all chemists keep now specially prepared for this purpose. A careful watch is kept for swollen udders. If they become swollen and hard, as they will do when the ewe has lost its lamb or refuses to allow it to suck, we pour equal quantities of olive oil and eau de Cologne in the hand and rub it well into the udder, which soon softens, so that the milk can easily be drawn from it. Protrusion of the uterus renders a ewe unfit for further breeding, and we mark all such for drafting from the flock after the lambs are weaned. When the protrusion is very prominent we tie a strong ligature around it as high up as possible; it falls off in a few days without causing any apparent pain or inconvenience to the ewe. Each ewe and lamb are kept in the fold for about a week, and then if the weather is fine they are put into a meadow apart from the sheep which have yet to lamb.

THE SCARLET FEVER OF COWS.

IN consequence of the alarm which has arisen among many persons by the late severe outbreak of scarlet fever at Wimbledon, when over 300 persons were attacked, and which outbreak is attributed by some of our best scientific authorities to the consumption of milk from cows suffering from a specific disease, we have been asked by some of our readers to give them more definite information as to the nature and symptoms of the cow disease which is supposed to produce scarlet fever in the human subject from drinking the milk. We find it stated in the report made by Drs. Power and Cameron to the Local Government Board on the outbreak at Hendon:—

"A specific contagious and infectious disease, occurring usually in the first instance amongst newly calved cows, and capable of being communicated to healthy cows by direct inoculation of the teats with virus conveyed by the hands of the cowman after milking a diseased cow, and perhaps by discharges from the mouth, nose, and eyes of infected cows coming in contact with the manger at which other cows may feed. It is characterised by general constitutional disturbance; a

short, initiatory fever; a dry, hacking cough; sometimes quickened breathing; sore-throat in severe cases; discharge from the nostrils and eyes; an eruption on the skin around the eyes; an eruption on the hind quarters; vesicles on the teats and udder; alteration in the quality of the milk.

"From five to seven days, more or less, after the commencement of the illness, one or more teats become enlarged, swollen to nearly double the natural size, and slightly oedematous.

"On fingering the teat there is no feeling of induration or hardness. Vesicles or bullæ next appear upon the swollen teats, and upon the udder between or near the teats. In number they range from two to four on a teat, varying in size from a pea to a horse bean, and containing at first a clear fluid. The first vesicle frequently appears between the two fore teats, close to the abdominal vein, and is usually as large as a good-sized horse bean. This vesicle is not preceded by a hardened papule as in cow pox, but is in the first instance a vesicle or bulla. These vesicles usually become broken in milking, leaving raw sores, sometimes red, in other cases pale in colour, with raised, ulcerated-looking edges. The lymph from these vesicles in this stage can seemingly be conveyed by the hands of the cowman to healthy cows, and so propagate the disease by direct inoculation of their teats. Shortly after the vesicle has been broken, a brown scab forms upon the sore. The scabs may remain attached for five or six weeks, or may fall off in ten days or a fortnight, a smaller one forming afterwards. A thin, watery fluid exudes from under the scab, and the sore ultimately heals under it.

"An eruption appears upon the top of the hind-quarter, on one or both sides, extending, in some cases, down the outside of the leg as far as the hock, in others to the fetlock joint. About fourteen days after the commencement of the illness, this eruption on the hind-quarters has arrived at its scabbing stage, and the severity of the eruption has appeared to correspond, to some extent, with the severity of the attack, and the number of vesicles upon the teats and udder.

"The milk of cows suffering from this disease, if set aside for some hours, is apt to become ropy or 'slimy,' or 'as thick as a pudding.'

"But ropiness of milk appears in several other cow diseases. Its precise nature, and the causes which give rise to it, require further investigation."

We are further given to understand that the cow disease is not one of those scheduled under the (Animal) Contagious Disease Acts, consequently local authorities have no power to prevent cows suffering from a malady productive of danger to public health being freely sold, with the consequence that fresh epidemics may possibly be set up in other districts. We trust that the attention of Members of the House of Commons will be directed to this subject, and that they will endeavour to induce the Government to remedy this Session what appears to be a serious defect in the present Act.

OUR LETTER BOX.

Winter Dietary for Cows (H. E. G.).—The dietary for cows in winter of hay, crushed Oats, bran, and Mangolds has been used for cows of various breeds with invariable success at our home farm for several years. We both use this dietary and recommend it to our readers, not only because it is nourishing, but also because it imparts no taint to the milk, of which the yield is always full till some two months before calving. Oil cake and Turnips are both highly objectionable articles of diet for dairy cows, tending as they do to seriously affect the flavour of both milk and butter. Your letter is not sufficiently explicit to enable us to understand why our dietary has not answered for your cows. That there has been some mismanagement we have no doubt, for we have found it answer admirably for Shorthorns, Sussex, Kerrys, Guernseys, Jerseys, and cross-bred cows. But then our cows have a full supply of the best meadow hay, they are never exposed to severe cold or wet, and they have plenty of clean dry litter for bedding daily.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain	
1887. Jan. and Feb.		Barome- ter at 32 ^s and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- peratnre.		Radiation Temperatnre.		
			Dry.	Wet.			Max	Min.	In sun.		On grass
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
Snnday	.....30	30.326	35.4	35.3	N.E.	40.0	46.8	34.9	53.6	36.5	—
Monday	.....31	30.109	46.4	44.9	S.	39.4	51.3	34.6	60.6	33.1	—
Tuesday	.....1	29.780	48.9	47.2	S.W.	40.3	50.6	42.2	54.1	36.9	0.094
Wednesday	....2	30.074	35.4	34.1	S.	39.4	44.8	29.7	72.2	25.8	0.093
Thnrday	....3	29.982	49.8	46.7	S.W.	39.2	52.8	34.9	66.3	31.6	—
Friday	.....4	30.347	51.3	49.7	W.	41.2	52.8	49.5	57.1	46.8	—
Saturday	....5	30.382	45.7	44.6	S.	42.2	54.1	43.3	67.9	57.1	—
		30.144	44.7	43.2	—	40.2	50.5	38.5	61.7	35.4	0.187

REMARKS.

30th.—Fog in morning, but not dark; fair afterwards.
 31st.—Fine and pleasant, but without bright sunshine; a little drizzle at noon; clear night.
 1st.—Dull early; wet from 11.30 a.m. to 0.30 p.m.; sunshine later, and clear evening.
 2nd.—Fine bright morning; stormy with showers in afternoon; clear night.
 3rd.—Dull, with a little sun about midday.
 4th.—Overcast all day; fine clear night.
 5th.—Fine and bright throughout; lunar halo at 7.45 p.m.
 On the whole a fine, seasonable week. Mean temperature 6° above the average, and 4° above that of the preceding week.—G. J. SYMONS.



17	TH	Linnean Society at 8 P.M. Royal Society at 1.50 P.M.
18	F	
19	S	
20	SUN	QUINQUAGESIMA.
21	M	
22	TU	SHROVE TUESDAY.
23	W	Society of Arts at 8 P.M.

CULTURE OF THE PEACH IN THE OPEN AIR.

NOTWITHSTANDING all that has been written of late about the changeableness and deterioration of our climate, "and the hopelessness of attempting to grow and ripen Peaches and Nectarines in the open air in this country," it is well known there are places in different parts of England and Wales where Peaches and Nectarines are still as well grown on open walls as ever they were at any time within the remembrance of the oldest amongst us. Ditton Park, Slough, Bucks, is famed for its Peach wall, and justly so. I have known Mr. Lindsay and the gardens at Ditton for the last thirty years, and during seven or eight years while I resided in the vicinity, I was a constant visitor at Ditton, and had many opportunities of inspecting the trees and the fine crops they produced. I have not seen them for some years, but it is satisfactory to learn from the Journal that the Peach wall, under the able superintendence of Mr. Lindsay, is still famed for its excellent crops of superior fruit.

There are several places in this neighbourhood where Peach trees do well on south walls, and ripen good crops of highly coloured fruit in good seasons. To accomplish this the trees must be kept in perfect health, and properly attended to at all times, and never allowed to suffer from the attacks of green fly or red spider during the growing season. Green fly and red spider are two of the worst enemies the Peach has to contend with, and if not thoroughly mastered as soon as they make their appearance they will disfigure the trees and destroy the crops in a short time. Peaches are well grown at St. Fagan's Castle, Court-r-ally, Pontanna, and in several places at Llandaff, near Cardiff; but I do not know of any place in South Wales, or indeed in this country, where there are so many fine Peach and Nectarine trees, or where better crops of fruit are obtained, than at Singleton Abbey near Swansea. I have seen these trees on several occasions during the summer and autumn, but never had an opportunity of inspecting them in winter when denuded of their leaves till a few weeks ago when paying Mr. Harris a visit, and I must say I have never seen healthier or better furnished trees anywhere. They were covered from top to bottom with thoroughly ripened young shoots from 18 to 20 inches in length, and studded all over with fruit buds.

Mr. Harris informed me that the border was composed of rich loam and old mortar, which was not more than 18 inches deep, and that it was cropped with vegetables to within 4 feet of the bottom of the wall (which 4 feet is muled with stable litter), and that no manure was dug into it at any time. Indeed, Mr. Harris does

not approve of dung or large deep borders for Peach trees in the open air, which induces them to grow too luxuriantly to be fruitful. When the soil gets exhausted it is removed, and fresh loam and old mortar added as required. From his experience in Peach culture he finds it necessary to lift the young trees carefully early in the autumn for the first three years after planting, to check their growth and bring them into fruiting. The trees are syringed night and morning during the summer, and watered with liquid manure once a week in hot dry weather. They are taken from the wall every winter to allow of it being painted with pure petroleum to kill insects of all kinds that may be harbouring there, and not for the purpose of retarding the bloom as some gardeners do. When the trees are in flower they are protected by screens, canvas, and Spruce branches until the fruit has set and all danger from frost and cold cutting winds is past. When disbudding the trees the young shoots for the following year's crop are left, as a rule, on the upper sides of the branches, and all the others removed. The shoots as they grow are carefully laid in during the summer, and thinned when they have been left too crowded to allow of them having plenty of room to ripen well.

The following are a few of the varieties of Peaches and Nectarines that are grown on the wall in the open air at Singleton. The wall I should say is 15 feet high, and the trees are planted at the distance of 20 feet apart, and completely cover it from base to top—Walburton Admirable, Alexander, Sea Eagle, Beatrice, Early Louise, Hale's Early, Dr. Hogg, Bellegarde, and Elruge; Diamond and Humboldt Nectarines. It seems strange that Royal George Peach and Hunt's Tawny Nectarine do not succeed on the open wall at Singleton. — A. PETTIGREW, *Castle Gardens, Cardiff*.

[Mr. Pettigrew's communication suggests the inquiry whether the degeneracy of Peach culture in the open air is chiefly due to a permanent change in the weather injuriously affecting the trees, or to a change of men and methods of culture. It cannot be denied that good Peach walls are much rarer now than they were thirty years ago; indeed, they are now so uncommon as to merit special notice when they happen to be seen, whereas they were once so frequent that a south wall minus Peach trees would have been a matter of comment among gardeners all over the south and midland counties, and even far into the north. One of the most successful examples of Peach culture on open walls that we have seen during recent years was at Oldlands in Sussex. The trees were planted, trained, and fruited by Mr. Edward Luckhurst. We have seen no trees and crops even under glass to excel these; but, and here is the point, we have seen equally good examples 200 miles further north. Especially remarkable, both as regards size, training, and productiveness, were the Peach trees at Redbourne Hall, Lincolnshire, as grown by Mr. Seymour. We know of no finer Peach trees under glass now than were there seen on open walls during the fourth and fifth decades of the present century.

As an example of a garden in the midlands where Peaches are grown with exceptional success out of doors, we may mention Charleote Park, the seat of H. S. Lucy, Esq. A wall some hundreds of feet long, with a southern aspect, is there devoted to Peaches and Nectarines, and when we saw them last year the trees were in excellent health, well clad with growth, foliage, and fruit. Numerous varieties are grown, so that a long succession is obtained, and in September several trees were bear-

ing fine crops of large well ripened fruits. Mr. Rodgers treats them liberally, and has the satisfaction of obtaining abundant supplies, a scarcity of these fruits having been a rare occurrence for some years past. In the neighbourhood of London we know several gardens of moderate dimensions where a few Peach trees planted against suitable walls are as healthy and fruitful as could be desired, but they are under the charge of thoroughly practical men who have studied in the old school of gardeners. There are unquestionably some cold exposed districts where Peaches will not thrive without the protection of glass, but there are many others where all they seem to require is better attention.]

A FEW GOOD VEGETABLES.

I do not intend to comment on all the different varieties of vegetables we cultivated last season, and only those novelties that stood out pre-eminently good, or any sorts which had also in previous years done us good service will be noticed, taking them in alphabetical order.

BEANS.—Of Broad Beans, by far the most heavy cropping variety will be found in Veitch's Improved Longpod. It is quite as early as the old Early Longpod, produces much longer pods in greater profusion, and in quality is equal to any other variety in that section. If an extra fine exhibition variety is required, try Carter's Leviathan. It having been asserted the latter and Seville Longpod were synonymous, we were requested to try the two sorts together, and according to our experience the Leviathan is much the best in every respect. Novelties in the way of Dwarf Kidney Beans are seldom introduced, nor do we want any more. Ne Plus Ultra for the earliest crops, and either Canadian Wonder or Negro Longpodded for the successional sowings are all that are needed, while if Haricot Beans are grown on the place, Carter's Longsword will be found the most profitable. Girtford Giant Runner crops heavily, and the pods are large and straight, but in this respect are eclipsed by the new Ne Plus Ultra, the latter being perfection from an exhibitor's point of view. Giant White lasts the longest in full bearing, and is of good quality, but on the whole, for ordinary purposes, the Old Scarlet is yet the best.

BEE.—The Turnip-rooted, notably the New Crimson Ball, is most useful for early sowings, and on shallow poor soils is the only sort that need be sown. If Dell's Crimson is supplied true it is fully equal to any of the so called improved and selected forms; in fact no fault can be found with it. Pragnell's Exhibition invariably becomes too coarse with us, but on poorer soils it is not so large, while the colour and quality of the root is excellent.

BORECOLE.—Read's New Hearting appears to be perfectly hardy, and as it gives a good heart at midwinter, in addition to plenty of side shoots subsequently, it ought to supplant any of the other Dwarf Curled sorts. It is of excellent quality when cooked, or almost equal to the tops of Brussels Sprouts. For hardiness, lateness, and productiveness, there is none to equal the Buda Kale, and this is also a delicious vegetable.

BROCCOLI.—Veitch's Self-protecting Autumn has again proved exceptionally valuable, and is the only really reliable late autumn and midwinter sort. It is, however, far from being hardy, and unless the most forward plants are lifted and stored in a cool house, deep frame, or pit, whenever severe frosts are anticipated, they are quickly spoilt. Snow's Winter White is very variable, and even late sowing does not always prevent a monstrous growth in the place of a good head. We grow it to prolong the supply till such times as either Veitch's Spring or Carter's Mammoth White are available, both of which are desirable sorts. Leamington is always good, and seldom gives a glut. Model also invariably proves in every respect a most excellent late sort, and last season Champion Late White was very fine. Our latest were Late Queen and Ledsham's Latest of All. Either or both of them may safely be sown for the very latest supplies.

BRUSSELS SPROUTS.—These have been even better than usual this winter. Non Plus Ultra, or the Northaw Prize, as it is also named, proves to be the best we have yet grown. The stock is very well saved, a good even breadth of plants being thus easily obtained. It crops heavily, and the sprouts are of medium size, close, and excellent when cooked. The Aigburth is perhaps the most profitable market variety, but it is too strongly flavoured for home consumption. Webb's Matchless will not disappoint those who may give it a fair trial.

CABBAGE.—A good stock of the old Wheeler's Imperial is yet hard to surpass, and we are cutting some at the present time which

the severe frosts did not greatly injure. The seed was sown about the middle of July, and the plants made unusually rapid progress in the autumn. Matchless and Ellam's Dwarf Spring are both excellent, the quality of the latter being especially good. For exhibition Heartwell Early Marrow is one of the best that can be had, and it is also good for ordinary purposes.

CHOU DE BURGHELEY.—We have at last discovered the best method of growing this novelty of Mr. Gilbert's. As a rule the heads have been much too large to be appreciated, but closer planting has obviated this difficulty, and we are now cutting plenty of little heads which, when cooked, are deliciously tender, almost too much so, in fact. Only the very forwardest were seriously injured by the frosts, and I must now admit that it is a really hardy and serviceable winter Cabbage. As a Cabbage we prefer to use it, the Broccoli heart which forms in those kept late not being much in request at a time when Broccoli are plentiful. We plant in rows 18 inches apart and 15 inches asunder in the rows.

CARROT.—The New Intermediate, or Veitch's Matchless, is undoubtedly a great improvement on the old James' Intermediate, and must eventually supersede that well known variety. With us it is not so coarse, and very much superior both in appearance and quality. Early Nantes is the best of the Horn varieties, and cannot well be too often recommended for general culture.

CAULIFLOWER.—As many have lost their autumn-sown plants of such good sorts as Early London, Dwarf Erfurt Mammoth, and Mont Blane, they will act wisely in sowing in gentle heat seed of either Carter's Defiance or Extra Early Forcing, a quick supply of pretty little heads resulting. These small sorts are also particularly good for pot or frame culture. To succeed either of the first-named sorts I can recommend Veitch's Pearl, Eclipse and Autumn Giant completing the succession.

CELERY.—White Plume will not long be grown in this country, as it is of no real value. A good stock of Incomparable Dwarf White is most suitable for the earliest sowings. In addition to this we have planted Major Clarke's Solid Red and Carter's Incomparable Crimson in equal quantities, and the latter has turned out the best of the two; our heaviest, and in other respects best sticks, being of this variety.

ENDIVE.—Green Curled and Improved Broad-leaved Batavian are all that need be grown in any garden, the latter being the hardiest, and is the best substitute for Lettuce. The two varieties in mixture form the best salad when no Lettuce is forthcoming.

LEEK.—Prizetaker is a fine, and as far as my experience goes, most distinct variety, the Lyon also proving exceptionally good in every respect. For ordinary purposes either Ayton Castle or Musselburgh will give satisfaction.

LETTUCE.—Early Paris Market Cabbage still proves to be the best for the first crops in frames or the open border, spring-sown plants hearting in very rapidly. It is very crisp and tender, and is one of the best varieties ever introduced. All the Year Round, a hardy and useful sort, is the only other Cabbage variety we grow for winter use. Veitch's Perfect Gem is both distinct and good, being remarkably crisp, and does not bolt or get flabby so quickly as most Cabbage varieties are very liable to do. Bath or Black-seeded, and Hicks' Hardy White are good hardy Cos varieties, and the first-named is also one of the best for summer culture. Paris White Cos, or one of the selections from it, is also most suitable for spring and summer sowing.

ONION.—The Queen, and its newer companion Carter's Golden Queen, are quick growing, mild flavoured, and very pretty little Tripoli Onions. Early Naples forms a good succession, Giant White and Giant Roeca also being usually grown by us. Giant Zittau may be sown either in the spring or autumn, but we prefer the former time, as it proves one of the heaviest croppers, and keeps rather better than the White Spanish varieties. Banbury Improved and Sandy Prize are large and handsome. The Wroxton also grows to a great size and keeps well. The old Brown Globe is yet unsurpassed for the latest supplies.

PARSNIP.—There is no better sort than The Student, and I am glad to find that it is sometimes considered good enough for the table of the wealthier classes. Mashed Parsnips go well with various "roasts."

PARSLEY.—Fern-leaved is the prettiest variety in cultivation, but a good selected stock of Double Curled proves the most hardy and serviceable.

RADISHES.—The Early Scarlet and White Forcing Turnip are both very quick growing and tender, and such sorts as French Breakfast and Wood's Early Frame are always appreciated. All are suitable for frames or warm borders. Red and White Turnip are the best for summer use, and the Long Scarlet for the autumn.

SAVOYS.—Gilbert's Universal again did us good service. It is rather early, and of very superior quality. Tom Thumb, Early Elm, Dwarf Green Curled, and Drumhead give a good succession.

SPINACH.—Victoria Improved Round, described in Veitch's catalogue as being "a fine variety for summer use, with thick dark green leaves, remaining fit for use ten days longer than the ordinary Round," fully answered to that description, and is well worthy of a trial in every garden. The Round-seeded is good for early and late sowing, and proves quite as hardy as the Prickly-seeded. Spinach Beet we find the best winter substitute for the ordinary Spinach, and the New Zealand for the summer supplies.

TOMATO.—There are a bewildering number of good varieties of these to select from. I still prefer Carter's Perfection for any crop, but Hackwood Park Prolific, Dedham Favourite, Hathaway's Excelsior, Reading Perfection, Large Red, and Dwarf Orangefield are each and all profitable and good, both indoors and out. Earliest of All is strongly recommended by a friend of mine, especially for fruiting on the open walls.

TURNIP.—Extra Early Milan has quite supplanted the Early Munich, being quicker growing and of better quality. It is unequalled for sowing under glass. To succeed this we have Snowball; Veitch's Red Globe for main and late crops; Chirk Castle being the hardiest of all.

VEGETABLE MARROW.—Muir's Pen-y-Byd again yielded exceptionally heavy crops, the quality being also equally as satisfactory. Long White may be grown by those who prefer larger fruit.

Remarks on Peas and Potatoes are reserved until another issue.
—W. IGGULDEN.

VIOLETS IN WINTER.

THESE are not so much grown as they deserve to be, considering with what little expense they may be had in flower from the middle of November till April, excepting during severe winter weather.

The sorts we grow are New York and Princess Louise, which we think are the best for frame work. About the middle of April is a good time to plant runners. Small ones should be taken off with a few roots if possible, and planted 14 inches asunder with a trowel on a piece of rich ground on the north side of a wall. Should the weather be hot at the time, they should be watered with a rose every afternoon until they have taken root, after which they will not want much attention till about the middle of June (unless the weather has been exceptionally hot and dry, when they would want a good watering before that time). By this time they should have taken possession of the soil, and weak liquid manure should be given once a week. But if they are not well rooted before liquid manure is given it will do them harm instead of good, as it makes the ground sour and acts as a poison to the plants, killing the roots as fast as they make any attempt to strike out into it. During summer keep the surface stirred with the Dutch hoe, and keep all bloom buds off and the long thin wiry suckers; but there will be several thrown out on each plant of short stocky runners from 2 to 3 inches long; take especial care of these, as each forms a crown which blooms after the centre crown is over.

About the last week in August a good heap of leaves should be formed with a little manure to start it heating, and when it has produced a good heat make up a bed, using some long stable manure for the sides. By the end of September it will be cooled sufficiently to place the frame on and the soil in it, which should be a rather light loam with a little leaf mould. A few days after try the bottom of the soil, and when it has cooled down to the temperature of new milk the Violets may be planted. They should be taken up carefully with good balls of soil, reducing it a little with the hands until it is about 8 inches through and the same in depth, which should all be one mass of roots. Plant them a foot apart each way and press the soil firmly. Give a good watering and keep rather close for a few days, and sprinkle overhead after dinner each day for about a week, when they must have all the air, gradually increasing it until the lights can be removed, excepting in very bad weather, at which time they should be propped up at the back. From the middle of November till the beginning of February the lights are better kept on. They must be kept properly up so that a current of air can pass through the frame to prevent damping, which is the worst evil in winter. During severe weather they must be well covered by placing long strawy manure around the sides of the frame, covering the glass with two or three thicknesses of mats or straw.

For, although Violets are generally considered hardy, sharp frosts will often injure them if not well protected, for I have known these varieties killed by frost when left out in the open border. Of course we do not expect to get Violets during such severe weather as we have lately experienced. When there is a pit with a hot-water pipe along the front which can be turned on in damp and foggy weather, or when the weather is severe, damp may be prevented, and flowers may be gathered through the whole winter. If they are well watered at the time of planting they do not often need more until the beginning of February, when weak liquid manure should be given, or a sprinkling of soot before watering.—J. L. B.

ALNWICK SEEDLING GRAPE.

THE illustration (fig. 21) gives a true representation of a bunch grown by Mr. Murray, gardener to the Marquis of Ailsa, Culzean

Castle, cut from a Vine that finished a crop to perfection, bearing 2½ lbs. to the foot of rod; however, it is the model shape of bunch, and the regularity of the berries, as shown in the illustration, that we think excellent and worthy of note, considering that Alnwick Seedling, like its compeers of recent introduction, has been praised by some and condemned by others. Its great fault is being a bad setter. Whether it is caused by locality or unsuitable treatment I cannot say, but Mr. Murray is often consulted about its setting and the treatment received, which he keeps no secret. I recommend anyone that grows Alnwick Seedling and finds it shy in setting to give his treatment a trial. The Vines referred to are grown on their own roots along with Lady Downe's and Alicantes, all having the same treatment. After removing all the surface soil yearly without damaging the roots, the borders inside and out receive a fresh dressing of turf, mixed with wood ashes and Thomson's Vine manure. During the growing season the borders receive heavy waterings up to the time the Grapes commence colouring.

The only extra attention that Alnwick Seedling receives is when

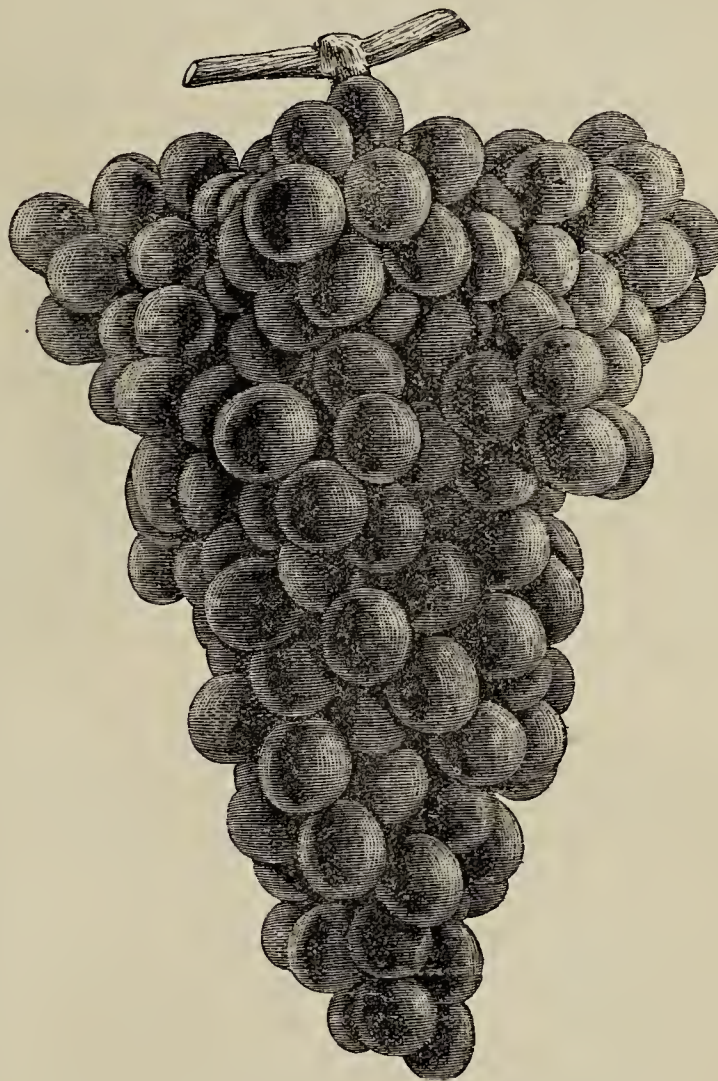


Fig. 21.—Alnwick Seedling.

in flower. Any close observer who grows this variety will know the difficulty in having the bunches sufficiently dry to allow the pollen to spread, owing to the quantity of nectar. To remedy this Mr. Murray approves of selecting a good day before he attempts the fertilising of the bunches, and not until the vinery has been well ventilated, which has a tendency to favour the operation, and he recommends the use of a few feathers instead of going over all the bunches with one brush, as the brush becomes too wet for distributing the pollen. On dull days, when no ventilation is provided, a sharp tap is given on the wires, or some pollen taken from other varieties, is collected on a sheet of paper or glass and blown on the bunches.—A BROTHER SPADE.

[The insertion of this letter will answer some inquiries we have received, and as one "new reader" is doubtful as to this Grape being worth growing we reproduce a bunch grown by Mr. Murray, and which

we have engraved from a photograph, showing that "half of the berries" are not "always like Peas."]

WATERTIGHT ASHPITS.

I HAVE been greatly interested in the discussion which has taken place on watertight ashpits, and can fully endorse what has been said in their favour from a practical point of view. About four years ago we had to replace one of our large boilers—size 6 feet by 3 feet; under this was placed a cast iron pan about 6 inches deep, which is filled with water every morning. Previous to this pan being put in we had no end of trouble with bars and clinkers running into one solid mass, also twisting and burning, and the expense in new bars was a serious item. Since using the watertight ashpits the bars put in four years ago have not been renewed and are as good as ever. Other two boilers of similar size with the same arrangements have since been put down with equally satisfactory results.

[] I can also endorse what Mr. Simpson says as to bars being placed too close so as to prevent a sufficient quantity of air getting to the fire. There is then a great waste of fuel, as the gases arising from it are passing up the flue unused. To prove this you have only to take a cover off the flue and insert a naked light, when the gases will ignite, and you have one mass of flame in the flue which ought to have been consumed in the fire and around the boiler.

Waterway grate bars do not find favour here. No doubt they absorb heat when in direct contact with the fire, but ours are not steam boilers, and cannot be clinkered as often as the steam boilers. As soon as they are coated with clinker or ashes, then the water in those bars is cooled by the action of the air passing between them to the fire.—T. C. A.

THYRSACANTHUS RUTILANS.

THIS is one of the most attractive plants we have for winter blooming. The flowers, which are bright scarlet, borne in long pendulous racemes, contrast greatly with the dark green leaves, giving the plant an elegant appearance. It is a free flowerer, producing its bright flowers through the dark winter months when, as a rule, stoves are quite destitute of flower. They may be propagated by cuttings, which should be taken off after the plant has finished flowering, inserted into thumb pots, and placed in a good bottom heat, where they will soon root if kept moist and shaded.

As soon as rooted, pot them in a good compost of light loam, leaf mould, and sand, some well-decomposed manure might also be added; place them in a good heat, where the plants should be kept growing as quickly as possible, so as to obtain them of a good size, after which they should be kept rootbound, which will induce them to flower freely. Six-inch pots will be found the most useful for this plant (as that size is generally used for table decoration) for which purpose the *Thyrsacanthus* is well adapted. If the drainage is in good order the old plants will only need top-dressing the second year, when they should be succeeded by young ones.—C. COLLINS.

NAILING WALL TREES.

THE majority of gardens of any importance are surrounded by walls, and it is both profitable and enjoyable to have these walls well clothed with fruit trees. To do this it is important that the trees be in good health, but their appearance depends chiefly on the manner in which they are trained. It has been remarked that the crops on many wall trees have not been in proportion to the great attention given to their training, and certainly a tree without fruit is not attractive; but those who train their trees carefully contrive to secure a crop of fruit.

The winter season is the time to nail trees. When the work is neglected then, and the trees are allowed to bloom before the main branches at least are fixed in their places, it will be found a difficult matter to do it properly, whereas just now it is very easy. The last lesson I ever had in nailing was at Dalkeith, in Mr. W. Thomson's time. It took a pair of us nearly three months to complete the work, and the experience gained then has never been forgotten. Each was made secure for the year. This should be the main object of all who nail fruit trees in winter; when they are only "tacked up" here and there the weight of the foliage and fruit in summer may cause the branch to fall. I have seen much fruit lost in this way, and many good trees permanently disfigured. Cast iron nails are best for wall trees, and should always be used. If driven in carefully not one in a thousand will break. Strips of cloth should be used for all the smaller branches, and tarred cord for the larger. The cloth should be strong and so fresh as to remain good for one season at least. Pieces half an inch or so in width and about 3 inches in length are the most suitable. Larger pieces may be used if necessary.

In beginning to nail a tree a little forethought should be exercised in distributing the branches. If they are closely arranged on one part of the wall and far apart on another, this shows a great want of consideration. The main branches should be tied in first, and if evenly distributed over the space the tree is likely to cover it becomes an easy matter to nail in the smaller side branches so as to furnish the wall regularly. In teaching young men to nail wall trees we generally allow them to finish a tree according to their own ideas, and invariably find that they crowd the branches in one part and leave large vacancies in others; and as the mistake is easily explained by pointing it out, it does

not often occur a second time. No great harm results to the trees by this thick and thin nailing so long as there are no leaves on the branches, but when in full foliage that part where the branches are close together will be such a mass of leaves as to prove immediately and permanently injurious to the tree.—A KITCHEN GARDENER.

CULTIVATION OF THE POTATO.

IN an answer to "R." at page 101, an opportunity is given to readers to give their experience on the cultivation of the Potato. That the Potato is rendered less robust and much weakened in constitution by allowing the tubers to start into growth, then to have these growths rubbed off before planting, there need be no question about. When a Potato has had its constitution destroyed through any cause, it is seldom it can be restored to its original vigour, unless by very special treatment in cultivation, such as planting in good virgin soil without manure, and the plants kept in a growing state without check until they are fully ripened. The tubers should then be lifted, spread out, and exposed to the sun, either in a house in thin layers, or, better, upon a raised bank spread not more than a foot deep, and well covered, so as to be safe from frost. In these small ridges they do not heat. Heating in bulk impairs their constitution. The more starchy Potatoes are, the more liable they are to heat when in a body, and in that state are undesirable for planting.

Potatoes intended for planting should be carefully selected. Potatoes are liable to sport, some varieties so much so that in three or four years the original shape, colour, and quality are practically lost. Others remain "fixed," some I am acquainted with having retained their original nature for half a century. When the Champion was first sent out I had some tubers sent me for trial. Although the Champion was sent as a disease resister, and is still so regarded by many persons, it was the first out of thirty varieties I had planted to be attacked with the murrain. At the present time I am using the Champion. It is a solid Potato, and I like its flavour, but it has sported. The samples before me now are of two distinct kinds, the one roughskinned and of excellent quality, the other a little larger, smoothskinned, and of a stringy nature, ill flavoured, and of bad quality, but both are Champions. If all the Champions in cultivation are of a similar nature, the sooner the cultivator makes a selection and discards the coarse ones the better will it be for all concerned. Many of our farmers pay by far too little attention to selecting Potatoes as well as of grain for seed.

Mr. R. Inglis (page 87) speaks about a White Fortyfold. There are many of these which have sported from the red variety. About a dozen years ago I selected a white tuber from the Red Fortyfold; perhaps from paying more attention to it the tubers grew a little larger, but they were not of better quality than the red variety.

I have had seedlings that in half a dozen years gave me as many varieties; it is a good point in Potatoes if they are of a fixed nature and not given to sport. With me the Magnum Bonum has retained its original character, and is a useful Potato which keeps well for nearly a year. I saw some last year during the month of August quite firm that were lifted in October previous. It has long been the custom for farmers in the lowlands to get their Potatoes for planting from moorland districts, where they had been grown on moss; such Potatoes were always considered superior for planting than those of a better quality grown upon harder ground, but whether it was because they were moss-grown or later in starting into growth I cannot say, or because they were had for less money I cannot say. Possibly their comparative cheapness commended them to the favour of purchasers for planting.

I am of the opinion that it ought not to be so much a question whether the tubers intended for planting should be large or small, as it should be to have well grown and fully matured tubers, selecting those only of fine form and general outline of the original proven variety; and if due care is taken of them from lifting till planting, so that nothing in the treatment causes any abnormal change in the tissues of the tubers, and the Potatoes intended for planting be specially cultivated with care for that purpose, they would not be so liable to degenerate as they sometimes are when cultivated in an indiscriminate manner. Whatever is worth doing is worth doing well. The cultivation of the Potato from its usefulness as an article of food deserves all the attention that can be bestowed upon it in that direction.—W. T.

EARLY PEAS.

SOME situations are more favourable than others for growing this much-esteemed vegetable for early use. On looking over an old diary I saw entered, "William I. Pea sown (outside) March 10th, gathered first dish June 18th; Day's Early Sunrise Pea same date, gathered June 30th." Thus showing that William I. is ten or twelve days earlier than Day's Early Sunrise. Whereas last year William I. and Carter's First Crop were sown in boxes (inside) on March 19th, planted out on a south border, and we gathered from William I. July 4th, when Carter's First Crop followed ten days or so later, proving that William I. is well adapted for early use.

Where the soil is cold and the seasons late, it is advisable to sow the first batch inside. They may be sown in pots, or turves placed in boxes. I prefer the latter, for when this plan is adopted there is no damage done to the roots when planted out. First take thick turves cut into pieces about a foot or 15 inches in length and 6 inches wide; then make a groove about 4 inches wide up the centre and place in boxes, close

together with the grass side down, sow the seed in the groove, and cover with good soil. They should then be placed into a gentle heat, where the Peas will soon appear through the soil. As soon as they are 2 inches high they will require moving to a cool frame, so as to harden off before being planted out.

If sown in pots ten or twelve seeds should be placed into 3-inch pots and treat in the same manner as advised, but when planted out they may be placed about 6 inches apart, as they will fill up as they grow and make the row complete.—C. COLLINS.

GRAPES WITHOUT HEAT FOR THE MILLION.

(Continued from page 105.)

TEMPERATURE AND VENTILATION.—The heat is such as the sun furnishes, and is plentiful when we want it—i.e., from spring to autumn. We need not look for any activity in the Vines before the vernal equinox, and our fruit will be all ripe before the autumnal equinox. The case and house are ventilated from the fall of the leaf until the buds swell, whenever the temperature outside is above freezing, or when the sun acts powerfully upon the house so as to raise the inside temperature over 50°. In mild weather ventilate to the fullest extent. In cold frosty weather the structure may remain closed. When the buds are swelling ventilate at 55°, and keep through the day at 65°, closing at the latter temperature. As the leaves expand, admit air at 60°, closing at 75°. When the foliage is fully out ventilate at 65° a little, and increase it with the ascending heat. In dull weather we shall have a lower temperature; in bright weather it will rise much higher than the degrees mentioned, and it will do good, only we must not have a close, but a freely ventilated atmosphere. We want firm wood and well developed foliage.

When the Vines are in flower freer ventilation is advisable; a little constantly will do no harm. With the Grapes set and swelling air should be admitted at 70°, and increased above 75°, so as to have it full when the temperature is between 80° and 85°. Keep that whenever opportunity offer as the day temperature, but do not allow an advance to 80° or 85° before admitting air, for under no circumstances must the early morning ventilation be neglected. Close sufficiently early, and before the temperature has declined below 80°, to cause the heat to rise a few degrees, or to 85° or 90°. It may even rise to 95° without danger. In all cases admit a little air at the top of the structure before nightfall. It allows the pent-up vitiated air to be changed, and it is a capital safeguard against scorching in the morning. In summer, after the Grapes are swelling, increase the ventilation early between 70° and 75°, keeping a temperature of 80° to 85° with a fair amount of top ventilation. That is the *régime* to be followed until the Grapes are ripening, when we increase, or rather divide, the ventilation, using both top and bottom about equally, so as to insure a circulation of dry warm air, and though this has the effect of causing the night temperature to be lower, it only rests the Vines and insures a more satisfactory finish; in other respects the temperature is the same as when growing. When the Grapes are ripe admit air more freely, a little constantly, except in dull foggy weather.

DIFFERENCE IN RIPENING.—The varieties will differ somewhat in ripening, but not more than a fortnight in those we have named. Some Grapes ripen quickly, other are rather slow, or take a longer time. This need cause no anxiety. Continue the temperature advised until the latest are thoroughly ripe. The other ripe ones will mature—i.e., they will be better for it, for though we consider Grapes fit to eat when they are black, or yellow, or amber to the shank, they get mellow with a little more time, losing the sharpness so characteristic of fresh ripe Grapes.

KEEPING.—We have really only three in our list that can be termed keepers, and they are not of the thick but tough-skinned type—viz., Foster's Seedling, Trentham Black, and Gros Maroc. The most we can expect are Grapes for the festive season. Cut them in November, or earlier, with sufficient wood for insertion in bottles of soft clear water with a few pieces of charcoal. The bottles should be fixed in an inclined position so that the bunches hang clear. The leaves, if not off, should be removed, otherwise place the lower end of the shoot in the bottles. An empty room, dry, and from which frost is excluded, will answer for keeping. Examine the Grapes occasionally for decayed berries, and remove them, keeping the water as required.

FRAMES.—Place span-roof frames with the ends north and south. Allow a space of 3 feet between the frames. To increase the depth, take out the soil 6 to 8 inches deep, sloping inwards from 3 inches less than the size of the frame, the base of the slope corresponding to the height. Make the border at the north end 6 feet wide continued the length across the ends of the range of frames. It need only be made 3 feet wide in the first instance. Plant the Vines at the side next the end of the frames and corresponding to the centre of each. Make an aperture in the end of the frame from the

bottom upward to admit the stem of the Vine about 9 inches by 1½ inch. It can easily be enlarged. The frames may be in lengths of 6 to 8 feet, prepared for joining end to end. One length is sufficient the first year, adding a length each year or every other as the Vines extend. How long the Vine would extend is matter for trial, but I do not advise the frames to be more than 24 feet. Stand the frames on a course of bricks. Train the Vine up the centre. Treat it as advised for a single cane or rod. A trellis should be provided of five lines 8 inches apart—a centre one for securing the rod to, and two on each side for the bearing shoots, the trellis flat and on a level with half the height of the wood sides. Instead of taking the rod up the centre, train the Vine with two rods, take to a wire 6 inches from the sides of the frame and on a level with half the height of the wood sides. Place the other wires so that the centre one is 15 inches under the ridge and the other wire on a level with a line drawn between the centre and the rod wires. The bearing shoots are trained up to the ridge, and the Grapes are nearer the centre of the frame and do better. The routine is the same as for other Vines.

Lean-to's are preferred by some. The frame need not be a costly affair. Oak posts charred and tarred to 6 inches above the ground last a lifetime. Have the front 18 inches deep, feather-edge boarding is best and overlapping so as to throw off the wet. Width 4 feet 6 inches, height at back 3 feet. Lights 3 feet (less half the width of the parting pieces) wide. Boards undressed, coated with boiling coal tar when dry. Plates (light 2½ inches) bevelled to give the necessary slopes for the lights. Lights 2 inches thick, glazed with 21 oz. sheet. Bearers for lights 4 inches by 1½ inch, and parting pieces 1½ inch. Those—viz., plates, bearers, and pieces, and lights only are dressed and painted. Squares bedded in good putty, nailed in, no top putty used. Border inside the size of the frame, reached from the back for watering, the whole of the back being moveable, being made in door or shutter fashion. Vines planted inside, one in a 12 feet, two in a 24 feet length and centre of the space. Two shoots taken from each, forming rods after the year of formation tied to a wire secured to the front posts with staples, and 9 inches below the top of the plates. Wires fixed lengthwise 1 foot from the under side of the lights 6 to 8 inches apart. Rods taken up as in upright training under every bearing piece, from which the bearing shoots are originated at 18 inches apart. Ventilation is given by tilting the lights or pushing them down from the top more or less. Another plan of ventilation is to have the top boards—i.e., front and back hinged and opening outward. This I do not think an improvement on tilting the lights.—G. ABBEY.

(To be continued.)

THE BULB MITE.

FURTHER search confirms my first suspicions that these mites are largely present in bone manure, especially where this is kept in a warm situation, few being observed in that stored in an exposed shed. I have also found the mites in stale horse corn. The odour of tar is very destructive to the insects. A few drops of spirit of tar or common tar on the soil and watered in are very effective, but it must be carefully. In extreme cases shaking out the bulbs must be resorted to, the paths, &c., being damped with water in which a little tar has been placed.—C. PRINSEP, *Hammerwick*.

I SHALL be obliged if you will inform me whether you have known before that Alocasias and Marantas were subject to attacks of the Eucharis mite. To-day I saw nearly all mine looked unhealthy, so turned them out, and to my horror found nearly all the roots eaten and full of these mites. I quite agree with Mr. Bardney's letter in your Journal, February 3rd, page 83, as last year I had them badly in Vallotas. I well cleared the bulbs, washed with insecticide, and they started finely and flowered, when they went off again and had the same insects as before. How is it? The Vallotas have never been near any of the stove plants, and last year was the first time I ever had anything of the sort. My Eucharises are grand, and as luck will have it have never been near the Alocasias, but as they are in the same house would it be advisable to give them at once some soot water? which I hear if applied when first they attack a plant is a good thing. A couple of years ago I had something of the same sort attack some of my pot Begonias, but they were three times the size. I burned the bulbs affected, and have had no trouble since with any of the rest.—A. G. P.

[We have not seen Alocasias and Marantas attacked by the "mite," but possibly some of our readers may have had that unpleasant experience.]

TRANSPLANTING PEAS.

THE practice of sowing Peas in pots or boxes and transplanting them in the open ground is adopted by a great many gardeners, but the practice deserves to be more generally adopted for the early sorts either tall or dwarf. To sow Peas in the open ground in the early part of the season (especially where the ground is wet and heavy) is very precarious

and even where the ground is more favourable for early sowing the attacks from mice, birds, and slugs often render a second sowing necessary. Although I strongly recommend transplanting Peas raised under glass, I am no advocate of raising them in heat, drawing them up weakly, and allowing them to get several inches in length previous to planting. I sow the Peas about the middle of February rather thick in shallow boxes, and place them in a cool house as near the glass as possible, and when they have grown about an inch above the soil I stand them out of doors in a sheltered place for a few days. In the first suitable weather they are transplanted in the open ground, a south border being the most suitable place for the earliest crop. In planting out, a line is stretched across the ground and a trench cut about 4 inches deep with a spade in the same way as would be done in planting a Box edging. The Peas are lifted out of the boxes and laid thinly along the trench, filling in the soil, and pressing it gently but firmly against the roots. After planting is completed draw as much soil up to the rows as will shelter them from cutting winds, and should bad weather follow a few Laurel branches or Fir stuck in close to the rows will afford all the shelter they will require, and as soon as warmer weather sets in they will make a start. I remember planting some out one year in the beginning of March, and two days after we had severe frost with east winds for several days. I gave the Peas up for lost. The men in the garden to whom the practice was new laughed at the anticipated failure, and I must admit that I had little hopes of the Peas surviving; but on the return of better weather they came away, and all was well. I concluded that after such bad times as they were subjected to I should not for the future hesitate in transplanting Peas in the way I have described.

Each grower has his specially favourite sorts. William I. has done good service, but this year I am trying Veitch's Early. Chelsea Gem is good in cold frames for an early supply, as also is American Wonder. The plan I adopt is as for planting outside, only sowing earlier, and in a little warmth, and planting them 1 foot apart, a few pieces, from worn-out birch brooms placed each side of the rows keep them from falling over, facilitates gathering the pods, and prevents the stems turning yellow at the base.—W. SIMPSON, *Knowsley*.

NOTES ON THE GEOGRAPHICAL DISTRIBUTION OF CORBULARIA.

BY GEORGE MAW, F.G.S., F.L.S.

[Read before the Scientific Committee of the Royal Horticultural Society, Feb. 8th, 1887.]

CORBULARIAS of late years having become popular decorative plants, the whole of the known forms being now introduced to cultivation, I think that a few notes on their characters and geographical distribution, mainly derived from my own observations, may be acceptable to the Royal Horticultural Society.

Although the greater number of the species of *Narcissus* have a wide geographical range, many of them spreading over the whole area occupied by the genus, the sub-section *Corbularia* presents a contrast in the limited and compact area it occupies compared with the wide ranging of the entire genus *Narcissus*. The Spanish Peninsula is its metropolis, and beyond this the extension is very limited. It has a range of about 10° in latitude—from 35° to 45° north; and 12° in longitude—from 9° west to 3° east. Forms of *Corbularia* are to be found throughout almost the entire Spanish Peninsula, and they extend sparingly beyond the Spanish frontier into France, and along the North African coast from Tangier to the longitude of Algiers. The most northern recorded habitat is near Bordeaux, and the most south-eastern at Guelt-es-Stel, 150 miles south of Algiers, where I gathered *Corbularia monophylla* in the spring of 1873. *Corbularias* do not occur in the Balearic Islands.

The general impression left by the careful study of all the forms is that they are merely connecting links of one variable species which is indivisible by any well marked boundary lines; and however different the extreme forms may appear, they are connected by insensible gradations, between which there is no definite demarcation.

Flower-colouring.—Every form of *Corbularia* is self-coloured, and however much the forms and species vary in shade, the segments are invariably of the same colour as the corona, except that they are externally green. The bicolor forms such as occur in most of the species of almost every other section of *Narcissus*, are never found in *Corbularia*. The filament is also invariably of the same colour as the corona and segments.

We find, however, two or three distinct sets of colouring—viz., white, primrose-yellow, and orange. I say sets of colouring, because, excepting the white, the other two colourings—primrose-yellow and orange—run through, as it were, in duplicate the entire series of forms, however variable they may be in stature—e.g., we have large primrose-yellow forms and large orange forms, small primrose-yellow forms and small orange forms, and the same colour duplicates of every size. I have felt inclined to give the white *Corbularia monophylla* from North Africa a separate sort of specific rank, from its invariable colouring of a kind that I was not aware occurred in any other form; but I have been somewhat shaken in this conviction by Mr. Tait's discovery near Oporto of a white form of *Corbularia nivalis*, the flowers of which are normally orange.

Habitats, Altitude, and Distribution.—The range in altitude is from near the sea level to heights of from 6000 to 9000 feet; and my observations show that there are no strikingly prevalent upland or lowland forms, many of them having wide ranges in altitude. The habitats are generally moist boggy places.

The several forms are never intermixed, each occupying a distinct habitat; indeed, I have only met with one case in which two different forms grow in proximity, and in this instance they were not associated, but occupied separate portions of the mountain pasture.

I shall perhaps be able to more clearly express the facts I have generalised by describing as an itinerary through western France, Spain, Portugal, Morocco, and Algeria, mostly from my own observations, the successive forms of *Corbularia* that would be met with in such a tour.

Commencing at Bordeaux, soon after leaving Bordeaux station, the moist healthy places in the Landes are at frequent intervals bespangled with the large sulphur yellow form, which is also seen occasionally by the sides of the railway as Bayonne is approached, and the same large pale form is frequent near the sea level in the neighbourhood of Biarritz. The following localities in France on the borders of the western Pyrenees may also be enumerated—Gradignan and Teste near Bordeaux, Agen, Dax, healthy places on Mount Olivet and the Palombiers above Bagnères de Bigorre, Tarbes, between Bagnères de Bigorre and Tarbes, sandy places, Tiplo near Fumel, Prades, Villefranche, Morlaas, Pau, and between Biarritz and Cambo. It is also abundant on Monte de la Haya at altitudes of from 2000 to 2400 feet, and on other mountains on the Spanish frontier near Irun.

A small pale yellow form has recently been found near Biarritz. Passing into Spain, we find on the limestone hills of Pancorbo, at a height of 3000 feet, a form somewhat different to that prevailing in western France, with small bright yellow flowers on a long scape. Turning northwards towards Leon, the moist places within sight of the railway are golden yellow in April with a small orange form, and a still smaller orange form, approaching *nivalis* in character, is abundant near Busdongo, at an altitude of from 4000 to 5000 feet, at the pass over the Asturias.

Descending the north side of the Asturias, the same large pale yellow form, which prevails on the north side of the Pyrenees in western France, again presents itself in moist meadows near Oviedo, near Lugones, and between Oviedo and Gijón, and in the immediate neighbourhood of Gijón, a large orange form occurs. In passing by rail from Leon to Coruna small orange *Corbularias* were in abundance between Leon and Astorga, and west of Astorga the large orange form similar to that at Gijón occurred sparingly at intervals.

Passing southwards, two forms, *C. nivalis*, with small orange flowers, the smallest known form, and *C. Graellsii*, with pale primrose-yellow flowers, occur abundantly on the Sierra Guadarrama at altitudes of from 3000 to 5000 feet. In a meadow near the Naval Peral station they were growing in proximity, though not intermixed; *nivalis* occurring in a boggy part of the field and *Graellsii* on the drier ground at an elevation of about 4000 feet. Descending the southern side of the Sierra towards the Escorial, *C. Graellsii* bespangled like Primroses the moist pastures with tens of thousands of its pretty pale yellow flowers.

I gather from Mr. A. W. Tait's "Notes on the *Narcissi* of Portugal," that the same kinds of varieties occur in the Portuguese as in the Spanish forms of *Corbularia*. The following particulars are mainly derived from Mr. Tait's notes and partly from my own observations.

In several parts of Portugal the form *obesa* occurs. It is of low stature, orange in colour, and departs somewhat in shape from the other forms in the corona being inflated or balloon-shaped with a convex instead of a concave outline. I found this in the neighbourhood of Cintra in 1871. It grows at Coimbra intermixed with the ordinary *C. Bulboeodium*, and on the Berlengas Islands off the coast of Portugal all the *Corbularias* are of the *obesa* type.

Mr. Tait's enumeration of the Portuguese *Corbularias* is as follows:—No. 1. With short-stemmed rich orange flowers produced in February and March, found in the neighbourhood of Oporto within 100 feet of the sea level.

No. 2. With a much longer scape and larger flower than No. 1, and an exceptionally large bulb, from hot marshes near the sea at Ovar twenty miles south of Oporto, flowering in March and April.

No. 3. Somewhat similar to No. 2, but of the *obesa* type from Cantanhede, forty miles south of Oporto, flowering about the 18th of April, at an elevation of 30 feet above the sea level.

No. 4. *Corbularia nivalis*, the smallest known form was found abundantly by Mr. Tait, at elevations ranging from 1000 feet to 4600 feet on the hills near Póvoa de Lanhoso, and on the Gerez mountains, flowering from the beginning of March to the middle of May, according to elevation, but much paler in colour, verging to white, than the form I found on the Spanish Sierra de Guadarrama.

No. 5. A double variety of a form resembling No. 1, found at Ovar, flowering on the 17th of April.

No. 6. One of Mr. Tait's most interesting discoveries is a supposed hybrid between *Corbularia nivalis* and *Narcissus triandrus*, flowering from the end of April to the middle of May, at an elevation of about 3500 feet on the Gerez mountains. The corona resembled that of *Corbularia nivalis*, but the segments were broader and reflexed, like those of *Narcissus triandrus*. The four specimens obtained in the years 1885 and 1886 were growing intermixed with the supposed parents. This is, I believe, the only known hybrid *Corbularia*.

Now crossing to North Africa. Two west European forms occur on the Barbary coast opposite the narrow Straits of Gibraltar—viz., the typical *C. Bulboeodium*, and the inflated form *C. obesa* in the neighbourhood of Tangier, but how far these extend east in the direction of Algiers has not been ascertained. In the province of Oran, as at Beniza, near Sidi-bel-Abbès, at Saïda, and Djebil Santo and other localities, the nearly white *Corbularia monophylla* takes their place, and there is no record of

the occurrence of any orange *Corbularia* in Algeria. *C. monophylla* appears to extend as far to the east as the longitude of Algiers, or a little further east than the eastern limit of *Corbularias* in Europe. It grows abundantly near the Cedar Forest at Teniet-el-Ahd, and in the spring of 1873 I observed it in flower at Boghar, seventy miles south of Algiers, and again at Guelt-es-Stel, 150 miles south of Algiers, but the last is the most south-eastern point from which it has been recorded, and is probably nearly the south-eastern limit of the range of the genus.

It will be gathered from these records that with the exception of *C. monophylla* there is no definite line of demarcation between the various forms of the genus which pass into each other by invisible gradations, and that even in their geographical distribution they are scattered through the region they occupy in a very irregular way both as regards altitude and locality.



A SPECIAL meeting of the Council of the ROYAL HORTICULTURAL SOCIETY has been summoned for Tuesday, the 22nd instant, when part of the business will be to appoint a sub-committee of the Council to confer with the Committee nominated at the annual general meeting to consider the future of the Society's affairs. The following dates have been fixed for the meetings of the Narcissus Committee—viz., March 22nd, April 12th and 26th. Should the season be backward it may be found desirable to hold another meeting on May 10th.

— THE LIVERPOOL HORTICULTURAL ASSOCIATION'S schedule for 1887 is just to hand, and from it we learn that the shows are fixed for the following dates:—Spring show in St. George's Hall, March 16th; summer show in Sefton Park, July 30th and August 1st; and the autumn show in St. George's Hall, November 22nd and 23rd. The prizes are of the usual liberal character.

— ANTS.—I am greatly pestered with a strong colony of ants in Vine, Peach, and Orchid houses; would any of your correspondents kindly say what is the best means of getting rid of them? I have tried boiling water with good effect where there are no roots, but cannot use it on Orchid pots or near the roots of Vines or Peaches.—T. C. A.

— IN Mr. W. J. Ireland's paper on BRITISH ORCHIDS, noted on page 110, the passage referring to the number of Orchids should be as follows:—"There are 3500 species of Orchids found in all quarters of the globe, and about forty species are indigenous to the British Isles."

— WE have received from THE NATIVE GUANO COMPANY a pamphlet of twenty-three pages, chiefly occupied with reprints of testimonials received by them during 1886. They date from widely separated districts, and are uniformly commendatory.

— GARDENING APPOINTMENT.—Mr. Arthur Ocock, formerly gardener to Major Roberts, Holborough Court, Rochester, has been appointed to succeed Mr. Bones as gardener to Mrs. McIntosh, Havering Park, near Romford, Essex.

— THE MAINTENANCE OF THE LONDON PARKS.—The Public Parks and Works (Metropolis) Bill proposes to transfer the powers and duties of the Commissioners of Works in relation to Victoria Park, Battersea Park, Kennington Park, Bethnal Green, and Westminster Bridge to the Metropolitan Board of Works, which shall maintain the parks, the cost of such maintenance (as far as it is not met out of the income of certain properties transferred with the parks) to be paid out of the consolidated rate, and "no part of the metropolis shall be entitled to any exemption from such part of the consolidated rate as is required for the purpose of defraying such cost." The suggested date of the transfer of the parks is the 1st of October, 1887.

— THE Council of the ROYAL METEOROLOGICAL SOCIETY have arranged to hold at 25, Great George Street, S.W. (by permission of the Council of the Institution of Civil Engineers), on March 15th to 18th next, an Exhibition of Marine Meteorological Instruments and Apparatus. The Exhibition Committee therefore invite co-operation, as they are anxious to obtain as large a collection as possible of such instruments. The Committee will also be glad to show any new

Meteorological Instruments or Apparatus invented or first constructed since last March; as well as photographs and drawings possessing meteorological interest.

— AT a meeting held in the Bible Society's rooms, St. Andrew Square, Edinburgh, on Saturday last, where nurserymen, gardeners, amateurs, and others interested in floriculture were well represented, the advisability of holding an AURICULA EXHIBITION IN SCOTLAND, or of proceeding to the formation of a society, was considered. Robert Cathcart, Esq., of Piteairlie, Fifeshire, was called to the chair. Mr. Straton, Annfield, Broughty Ferry, stated the results of his efforts to ascertain the support such a movement was likely to meet with. The opinion of the meeting was that there was such as amply to justify the formation of a society. After consideration, it was resolved that this should be styled the Scottish Primula and Auricula Society. Mr. Cathcart was unanimously chosen President, and Mr. Straton Secretary and Treasurer, with Mr. James Grieve of Dickson & Co., Edinburgh, as local Secretary. The other office-bearers were duly elected, and a Committee was appointed to draw up rules and the prize list for the coming Show. The annual subscription for membership was fixed at 5s., and it was decided that the first Exhibition be held in the beginning of May. The enthusiasm of those present and the cordial promises of support received by Mr. Straton from many others throughout the country promise well for the success of the new Society.

— THE JUBILEE—A GARDENERS' ORPHANAGE.—Mr. Wm. Dickens, The Gardens, The Platanes, Champion Hill, S.E., writes:—"I have read with great pleasure Mr. Penny's suggestion, which I think is an excellent one—namely to found an orphanage for the unprovided children of gardeners, and it ought to commend itself to gardeners. A contribution of 5s. for head gardeners and 2s. 6d. for journeymen paid down, and the same amount yearly, would not require a great effort. I hope to have the pleasure of reading in the Journal a few lines from some of the leading gardeners supporting Mr. Penny's suggestion."

— THE issue of the "Journal des Roses" for the present month contains a coloured plate of ROSE ARCHDUCHESS MARIA IMMACULATA, a new variety obtained by M.M. Soupert and Notting, and being sent out this year. It is said to have resulted from a cross between the Tea Rose Madame Lambard and Soerate, made in 1884. The seeds were sown in autumn in a warm house, and "many seedlings flowered in the spring of 1885." The variety is described as floriferous, of a new colour, delicious perfume; the flower large, full, but, as shown in plate, irregular in form; the colour a bright reddish rose, but somewhat variable. The habit, wood, and foliage are those of Madame Lambard.

— SUMMARY OF METEOROLOGICAL OBSERVATIONS AT HODSOCK PRIORY, WORKSOP, NOTTS, by Mr. Joseph Mallender, January, 1887.—Mean temperature of month, 32.4°. Maximum on the 29th, 54.3°; minimum on the 7th, 12.3°. Maximum in sun on the 29th, 92.9°; minimum on grass on the 7th, 4.0°. Mean temperature of the air at 9 A.M., 33.8°; mean temperature of soil 1 foot deep, 34.4°. Number of nights below 32° in shade, nineteen; on grass, twenty-seven. Total duration of sunshine in the month thirty-nine hours, or 16 per cent. of possible duration; sixteen sunless days. Total rainfall in the month, 3.30 inches. Maximum fall in twenty-four hours on the 7th, 0.52 inch. Rain fell on fourteen days. Wind, average velocity 9.4 miles per hour. Velocity exceeded 400 miles on one day and fell short of 100 miles on four days. Approximate averages for January—mean temperature, 37.5°; rainfall, 1.71 inch; sunshine (six years), 34.5. Very cold and with very deep snow. The storm which had lasted six weeks broke up in the last week of the month, and the last few days were warm and fine.

— WITH regard to the best POTATO TO SUPERSEDE THE "SCOTCH CHAMPION" IN IRELAND, Mr. W. J. Murphy writes:—"In response to 'Thinker's' suggestion, in a recent issue on this subject, that those possessing robust growing varieties, tolerably free from blight, should send me a few specimens to try. Permit me to acknowledge the following in the order received from your two great seed firms:—From Messrs. Carter, High Holborn, London—new and not yet in commerce—King of Russets, Bennett's Surprise, and Freedom; and from Messrs. Sutton, The Royal Berkshire Seed Establishment, Reading, Sutton's Twenty-one, Sutton's Thirty-six, and Sutton's Forty-four, this year's introductions, and of 1886, Sutton's Abundance and Sutton's Seedling, 7 lbs. of each. After thanking your correspondent for the possible good

that may result, need I say they will be carefully grown, compared and reported on fairly to the respective firms?"

MOLYNEUX'S "CHRYSANTHEMUMS AND THEIR CULTIVATION"—A CRITIQUE.

[A paper read at a meeting of the Walefield Paxton Society by Mr. T. Garnett.]

AFTER a few introductory remarks the author of the paper proceeded as follows:—If adverse criticism had been my only object in preparing this paper, the charge of rashness had need to be substituted for the one of boldness, which a distinguished authority made when he told you a few weeks that he must be a bold man who dares to criticise Mr. Molyneux. Once for all let me repudiate the notion that I assume to the controversial skill of the "captious critic." What we have to consider is how much modification his rules of practice require to suit our own. In the first place our climatic conditions compared with those upon which Mr. Molyneux founds his practice are such that a considerable portion of the summer is cut off both ends of ours. Beyond this the general temperature at Swanmore is higher, combined with pure air and more intense sunlight, which no doubt effectually perform that important operation upon which Mr. Molyneux lays particular stress—viz., the consolidation and ripening of the wood. On the other hand, the greater number of us have to practise within the smoke zone of large manufacturing towns, where every genial cultural influence is modified by this smoke fiend.

Mr. Molyneux has given the cultural dates which he finds best to suit his locality, and he has made tolerable good guesses at the most likely dates suitable for northern growers, yet it does not follow that he is infallible on points depending on knowledge of localities where he has had no experience. Even his Liverpool experience will avail us nothing, because it is well known that the west coast of Great Britain has through its entire length a better climate than ours at this side of the Pennine Range. The controversy in the *Journal of Horticulture* also showed that cultivators in different localities do not see eye to eye with him on certain moot points. I shall confine my remarks to these debatable questions, at it would only be wasting your time to refer to the details of Mr. Molyneux's book, which obviously may be satisfactorily settled in our own minds without conflict of opinion.

The controversy so far has hinged on the best time to secure the buds, but up to now no tangible results have accrued from it, because the light thrown upon the subject has been so far only the reflections of vague conclusions as to the true habit and peculiarities of growth of the Chrysanthemum. As all the cultural details for large and exhibition blooms are involved in this question, to state that such and such dates are best upon which to secure the buds of certain sorts is all very well, but this is only one station on the road to success. We are left to find out for ourselves all about the habit and peculiarities of the plant, nothing in the way of advice to guide us how to manipulate the "stock" so as to bring it to this bud stage at the dates given, just as if the buds would come at the time we want them, a theory that is soon exploded in practice. Anyone making a study of the plant will easily discover that these "buds" show according to certain fixed principles, but they have not, so far as I have seen, been explained, and a great deal of complication occurs, which Mr. Molyneux has, if anything, still more complicated instead of throwing that light upon it which was expected from so eminent an authority. We will pass on to discuss these complications.

Starting with the best time to strike the cuttings. Mr. Molyneux recommends from the 12th December to 12th January, and the only objections he brings against November-struck cuttings are, "That they are too early, and are liable to give trouble by insisting on the production of flower buds during April and May [this persistent bud-producing propensity is not to be confounded with the ordinary May bud], some varieties being more liable to this propensity than others. But when cuttings can be had the former date, 12th December, is preferable, as more time is allowed for steady growth in a cool temperature, and growths thus produced have the best chance of becoming solid through the proper maturation of the tissues of the plant, as compared to cuttings put in during February and March." If this argument in favour of December cuttings holds good, it must tell still more in favour of the November-struck plants, with the exception of the "bud-producing propensity." In reference to this point my experience teaches me that sucker cuttings never show this propensity. On the contrary, stem cuttings are very liable to do so, and if I have the opportunity of getting sucker cuttings of the late sorts I do so, and do not find them too early; in fact, it is of more importance hereabouts to have those sorts put in first than "Criterion" and some others described by Mr. Molyneux as weak growers.

A paragraph in the same chapter, page 5, on early *versus* late-struck cuttings, and their relative influences on height of growth and quality of flower, meets the case in very vague and general terms, as does also the chapter on topping and training, page 22, which must be very puzzling to beginners. Starting with the paragraph on page 5 we read:—"Some growers say that late propagation reduces the height of the plants. This is the case in some instances [why in "some instances" only?], but is generally at the expense of the quality of the bloom. To insure these of the highest quality height is essential [what degree of height?]. I have not yet seen—save in an exceptional case or two—blooms of the same quality produced on dwarf plants through some unaccountable reason [why unaccountable?], as upon those grown in

what I will term a more natural manner in regard to the relative heights attained under the two systems." Mr. Molyneux's contention here is that tall plants of some unexpressed quantity in height are more to be depended upon to produce high-class flowers than are dwarfier plants of the same variety. We ask, Is it more unaccountable for dwarf plants to occasionally produce good flowers than it is for tall plants to produce poor flowers? The answer is that word often may be substituted for the word occasionally in reference to the dwarf plants, because in looking over collections of Chrysanthemums in bloom we do very often see dwarf plants carrying finer flowers than taller plants of the same variety, and I may also add that the reasons are not so unaccountably obscure as Mr. Molyneux leads his readers to suppose.

We will now pass on to the chapter on training plants for large blooms. On page 23 we read as follows:—"Some persons consider topping induces a dwarfier habit, but I have seen plants grow quite as tall when topped as when grown under other systems. [This statement in its present vague form is paradoxical, but I hope further on to show how this occurs.] Other cultivators top the plants when 8 inches high, but owing to the wood not being thoroughly ripened consequent on this late topping, and the growths being behind their natural stage, the blooms are generally large but not of first-rate quality. [Topping at 8 inches high indiscriminately as to time is no proof of Mr. Molyneux's argument.] As a general system it is best to allow the plants to assume their natural habits. The growth is then solidified, and all the wants of the plants are met at the proper time. The plants are not topped at all, but allowed a free uninterrupted growth until the first natural break, which sometimes occurs about the middle of May or early in June, according to the time the cuttings were struck, early or late." Just previous to this we read:—"I must make an exception in the matter of topping in favour of Eve and its sport Mabel Ward. Good examples of these are seldom seen. The best way to ensure good flowers is to grow the plants with one stem until the middle of May, then top them, and then take the first bud produced."

What logical bearing have these statements on each other? Either Mabel Ward and its prototype are constitutionally so far different from the general run of the other sorts as to produce better flowers from growths not thoroughly ripened, and all their wants not met at the proper time, or Mr. Molyneux's argument falls to the ground. On the other hand, if topping those varieties improves the quality of their flowers, how does it injuriously affect the quality of the flowers in the other varieties?

The fact is ignored that the Chrysanthemum makes its growth on certain fundamental principles, which involve peculiarities that require to be thoroughly understood. To illustrate my meaning, we take plants from sucker cuttings. The plants according to their varieties and individual habits produce a certain number of leaves and their internodes if unstopped before they show the first bud. The question now arises, For what purpose has Nature produced this bud? There can be no question but that she intended it to develop into a flower. But we must bear in mind that the plant has been subjected to artificial conditions up to this stage of its growth, and owing to the want of the necessary degree of air and solar influences to act on the foliage at this early stage of its existence, it has not had time to solidify its wood and store sufficient elaborated secretions for the purpose of forming a flower. At this time of the year when this flower bud shows the days are lengthening and solar influences increasing, Nature calls on the plant to rectify the violation of the law which has occurred by the forcing the plant out of its natural season, the growing influences are reawakened or preponderate over the blooming influences; consequently, the plant again starts into active growth, and if it is allowed uninterrupted progress we shall find, although not quite so long, the leaves and internodes are about the same in number as were produced in the first stage. Thus from the sucker cutting, if no joints are removed from the lower part of it to the first bud stage, we get the fundamental principle of calculating the true height of a variety. In the second stage, in some cases, under certain conditions, there are sometimes slight modifications, as for instance when a plant is allowed to grow in a natural manner without stopping, the condition of the plant as to ripeness will modify the growth so far that it may be shorter but never longer than it does in the first stage. After the second bud stage modifications occur and are attributable to constitution, cultural and climatic conditions, the constitutional condition being liable to modification in the direction as indicated above. When the plant has arrived at the second bud stage it should be ripening and storing the secretions required. I shall have occasion later on to again refer to this stage of the plant, so we will now go back to other cuttings than sucker cuttings.

We are compelled to take cuttings from the ripe stems of the plant when suckers fall short. I have previously alluded to the bud-producing propensity of stem cuttings, the reason being that the shoot of which we make the cutting draws its supply of nourishment directly from sap vessels already "stored" with the secretions necessary for reproduction instead of having to grow and elaborate them, as is the case with sucker cuttings. The riper the stems and the better they are stored with those secretions the more likely are the cuttings to develop the persistent bud-forming propensity which Mr. Molyneux refers to on early struck cuttings. They often only make one bud at any height from 4 inches high to 12 inches, and afterwards develop into healthy vigorous plants, making the normal development of growth, as in the case of the sucker cuttings; but the 12 inches, more or less, which was produced before this bud shows, will now have to be added to the May bud stage. Thus

you see that this complication of height as reckoned from the bud stages must necessarily complicate the time when the "buds" show.

We now come to another complication as regards height and bud formation. On page 46, fig. 8, is an engraving of a dwarf plant representing "Peter the Great," 8 inches in height. Here we have a plant with only six leaves, producing a flower 5 inches across. What influence here has the height of the plant on the size and quality of the bloom? I answer, Little or none, because in this case the flower bud would be formed before the cutting was taken from the parent plant, and no doubt had received a certain amount of highly elaborated support from the parent stem to begin with. Let us take another cutting of the same sort from another plant of the same height, or it may be taller, or dwarfer, no matter; but if owing to the complications of bud-forming we probably find this cutting situated 12 inches nearer the point where the last bud was formed on the shoot from which it is taken, although it may be at the apex of the plant, the consequence will be that instead of a pretty little plant we shall have it 20 inches high, more or less, and very probably the flower produced on it will be much worse than the one on the 8-inch plant. From this point of view it will be quite apparent that anyone setting out with the idea that all they have to do to insure similar success is to insert the cuttings on a specified date, may very easily be disappointed. All these complications occurring through a collection of Chrysanthemums are very puzzling, and all of them have a decided influence on the time when the buds show, which the cultivator is anxious to secure, and will have to be considered by him in his daily practice. It is therefore essential that he be master of so important a clue to the causes of them, so as to understand what otherwise would appear anomalous.

(To be continued.)

HARDY FRUIT CULTURE.

I PLANTED many acres of land with Apple, Pear, and Plum trees years before Mr. Gladstone foolishly urged farmers to grow fruit for jam instead of corn. I experimented with nearly all the good old sorts and most of the new that have been sent out with a good character.

I write the above because some might say, What can a man know about fruit trees who has devoted most years of his life to Orchids, and many years to hardy bulbs and plants for flower mission work? In your issue of February 3rd there is a very interesting and instructive article under the head of "The Beginning of Wisdom."

The only exception I take to it is the recommendation of Lord Suffield Apple as suitable (by inference) for all soils. My experience has been that it does not succeed on the soil here.

I have no doubt it does well in many places or Mr. Wright would not recommend it. The point, therefore, that I wish to draw attention to is the want of information as to the sorts suitable for each description of soil and subsoil. Even in Kent, the garden of England, all the land is not fit for fruit-growing. In many parts of Essex the soil is heavy, with subsoil of clay; in other parts it is light. Mine is the former, and the sort for an early crop is Pond's Seedling, as I find it far superior to Lord Suffield. Warner's King also does well. It often weighs at Walton-on-the-Naze, close to the sea, 22 to 25 ozs. without any particular care in cultivation, and on heavy soils keeps longer than when grown on light land. With me the Myrobalan stock is much better for Plums than any other I have tried; but a Kent grower of large experience told me that he had known places where it did not answer. Therefore I consider that what we mainly want now is a tabulated statement of different soils and the subsoils, with the names of the sorts and the stocks that are most suitable for each. If such particulars could be sent by cultivators in various districts for publication in the Journal much useful information would be disseminated.—ROBERT WARNER, *Broomfield, Essex.*

[We will readily publish information of the nature suggested, and shall be obliged if our esteemed correspondent will favour us with a tabulated statement of his own experience, and his example would probably be followed by other cultivators. A circular somewhat of the nature indicated, but containing no columns for soil, can be obtained from Mr. E. J. Baillie, F.L.S., Hon. Secretary of the Grosvenor Museum, Chester, under the auspices of which it is proposed to have an exhibition of hardy fruits (Apples and Pears) on the 3rd, 4th, and 5th of March next, and to make it an occasion for holding a Fruit Conference, when papers on various subjects relating to the question of fruit-growing will be read, and opportunity for free discussion will be given at the close of each paper.]

THE UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.

THE twenty-first annual meeting of this excellent Society was held on Monday evening last at the "Caledonian Hotel," Strand, London, Mr. Richard Dean, one of the honorary members ably presiding. The meeting was the largest ever held by the Society, the room not being half large enough for the accommodation of the members. After the election of ten new members and the nomination of several others the Chairman called on Mr. James Hudson, the Treasurer, who since Mr. McElroy's death has efficiently discharged the duties of Secretary, to read the report, which was as follows:—

ANNUAL REPORT FOR 1886.

The officers of the above Society have much pleasure in again presenting

to the members of the same (and for the information of the profession in general) the report and balance-sheet of the year ending January 10th, 1887. They are glad to say that the number of members continues to increase steadily, and there is constant inquiry being made by gardeners throughout the country for the rules and regulations governing the Society. They appeal to each member for assistance in furthering the interests of the Society by making its benefits and advantages known whenever they have the opportunity so to do. Everyone can thus aid in a considerable measure towards making it a still greater success, remembering, as we do so, that our motto is "Union is Strength," which, with "unity" in regard to our interests, must result in making us a far stronger body than we are at present.

We have now reached our twenty-first annual meeting, and in revising the work of the past twenty-one years there is reason for congratulation that the objects had in view by those of our number who aided in forming the Society have been verified to a considerable extent. We have assisted those who have been laid aside by sickness; have aided those children who were bereft of both parents; and, last but not least, we have been able in many cases to hand over a good sum of money to the widows of our late members, the thankfulness with which the latter sums have been received has been testified to in many instances.

We have to deplore the loss of our indefatigable and hardworking Secretary, the late Mr. John F. McElroy, who had the interests of our Society so thoroughly at heart for the entire period of his service in that capacity—viz., fourteen years. The letters that have been received by the Treasurer whilst acting as Secretary *pro tem.*, have with one accord borne the highest testimony to his earnest endeavours on their behalf; whilst the punctuality of his communications, the kind advice given to those who reside at a distance, and the opinions formed by several who had never seen him, but framed their value of his labours by the character of the man as shown in his letters to them, could hardly have been exceeded had they had the pleasure of his personal acquaintance, which so many of us have derived benefit from during the long period which he served us.

In respect to the benefit fund the accounts show that the income during the year has been £346 8s. 10d., this including the contributions of 177 members, and the interest amounting to £63 6s. 4d. accruing from invested funds. The disbursements, including a payment of £19 9s. 7½d. to the widow of a deceased member, being £46 8s. 4½d. The payment to the widow referred to brings out a striking feature of the Society. The deceased member had ceased his payments for ten years, and in accordance with the rules of ordinary benefit societies would have had no further claim; but in this case his accumulated surplus, that had been invested for him, was promptly handed over at his death to his widow as his nominee. As the general result of this fund we observe the balance in hand on January 10th, 1886, was £2183 8s. 6½d.; on the corresponding date this year it is £2482 5s. 10½d., an increase of £298 17s. 4½d.

The benevolent fund, from which no grants have happily been called for, has increased from £1018 2s. 11d. to £1092 0s. 1½d. during the year—a gain of £73 17s. 2½d.

The management fund shows a balance in favour of the Society of £5 16s. 6d., and this sum the Chairman was instructed to send to Mrs. McElroy with a letter of sympathy expressive of the feelings of the members. The balance from this fund is the only emolument the late Secretary has accepted, though the rules empower the payment of £20 a year to the Secretary. It is most desirable that means be devised for increasing this fund, and suggestions were made with that object, as at present it is quite inadequate for providing the Secretary's salary, apart from furthering the interests of the Society and extending the usefulness. The additions of honorary members include C. M. Major, Esq., Cromwell House, Croydon; Messrs. Sutton & Sons, Reading; and Mr. John Laing, Forest Hill. Further additions are hoped for, and it seems difficult to imagine anything that merits support better than this Society of steady and prudent gardeners striving to provide for the vicissitudes of life.

The payments to sick members during the year amounts to £17 7s., this being met by deducting 1s. 8d. from those members who contribute £1 6s. a year, the remainder, or £1 4s. 4d., being added to their deposit accounts. In the case of some of the older members the interest arising from their accumulated deposit now equals their annual contributions. The sum of £352 17s. 6d. has been invested in Consols during the year, making the total sum now invested £3650.

The Report being adopted, the meeting proceeded to elect four members of Committee in the place of an equal member retiring by rotation. Seven members were nominated, the following being accorded the greater number of votes, and were consequently elected—namely, Messrs. E. Berry, H. Heims, E. Wheeler, and W. Wright. There were three applicants for the secretarial vacancy—Mr. W. Collins, gardener, Chivos House, Poynders Road, Clapham Park, London, S.W., being elected almost unanimously. Mr. W. Foreman was elected in his place on the Committee.

A suggestion made by the Chairman to the effect that the Society having attained its majority in the Jubilee year of Her Majesty's reign, the occasion would be appropriate for a commemorative gathering of the members, met with general approval, and the subject will be considered at a future meeting.

In respect to the death of Mr. McElroy it was desired that the following expression of the meeting be recorded on the minutes, "The members of this Society in annual general meeting assembled desire earnestly and unanimously to record their deep sense of the loss the Society has sustained by the death of Mr. J. F. McElroy, who, for a period of fourteen years, was the indefatigable Secretary of the Society, during which time he won not only the confidence, but the affection of the members."

A cordial vote of thanks to the Chairman terminated the proceedings.



VANDA TERES.

VANDA TERES is a beautiful Orchid, and though it troubles some cultivators a little to secure its health and the production of flowers, yet there are not so many failures now as there were a few years ago, indeed with some growers it thrives quite luxuriantly. A more suitable system of culture has been adopted, no doubt in a great measure due to the advice of experienced orchidists like Mr. B. S. Williams, and the plants are not so severely dried now as formerly. They are placed in a warm light corner, the pots covered with sphagnum kept constantly moist, so that the growth is made freely and rapidly. Some time since we called attention to a well-grown and freely flowered plant of this Orchid in Mr. Alexander Druce's garden at Dulwich. This was grown constantly in the stove where there was a large water tank affording a continual supply of moisture, the only difference in its treatment being that in the winter it was suspended nearer the glass.

The typical Vanda teres was found by Dr. Wallich in Sylhet, where it was grown on trees; it was also subsequently found by Mr. W. Griffith in the Burmese Empire, similarly on trees; and by Mr. Gibson near Pondooah at the base of the Khoseea hills. An illustration was given of it in the "Botanical Register," vol. xxi., t. 1809, published in 1836, and the following year plants were sent to Chatsworth by the collector last mentioned, from one of which an illustration was prepared for Paxton's "Botanical Magazine," vol. v., t. 193. The "Botanical Register" plate represents the better-coloured variety, the other being more remarkable for the size of the flowers than the colouring. Several very distinct varieties have been obtained from time to time, but one of the most notable is V. teres Andersoni, which has large flowers of a very rich colour. The best example of this variety we have seen, and in all respects a very handsome specimen, is that which attracted so much attention in Mr. J. Broome's collection at Didsbury, near Manchester, a short time since. We saw this plant about twelve months after it was imported by the late Mr. J. Freeman, and it was then 4 feet high, as much in diameter, and of globular form. Over 200 racemes had been counted upon the plant, some of which had as many as six flowers each, and it can be imagined that it was literally a mass of flowers.

In ordinary varieties the sepals are nearly white, the petals flushed with crimson, the lip bi-lobed at the apex, which is regularly streaked with crimson, yellow in the centre, with radiating lines of crimson dots, and two large lateral incurving lobes also veined with rosy crimson. A variety appeared in Lord Crewe's garden some time ago, that was nearly white, and which has been named candida. A third well-marked variety is that of which flowers are shown in the illustration (fig. 22)—namely, V. teres Aurora. This was exhibited by Baron Schröder at a recent meeting at South Kensington, and was then much admired. The sepals and petals are broad, the former white, the latter delicately tinged with rose and twisted in a more marked manner than in other varieties. The lip is of a soft rosy hue, the veining being less distinctly marked than is usual in V. teres.—L. CASTLE.

VANDA SANDERIANA.

THE *American Florist* for February gives an illustration of this notable Orchid with the following particulars. This plant was taken from its native habitat in the East Indies by one of Messrs. Hugh Low and Co.'s collectors, and brought to England by him in 1880. Messrs. Low & Co. established it and sold it at auction in London, where it was purchased by Messrs. Backhouse & Sons of York for 200 guineas. They sold it to Messrs. J. Veitch & Sons, who sold it to Mrs. Morgan for about double the amount the plant first sold for. At the Morgan sale it was purchased by Messrs. Siebrecht & Wadley for 900 dollars, who in turn sold it to the late Mr. C. J. Osborn for 1000 dollars. The day after it was sold a letter was received from England with orders to purchase it at a much higher figure; but the plant went to crown Mr. Osborn's collection, where it still remains."

CALANTHES DEGENERATING.

UNDER the above heading your correspondent "C. V. R." attributes the failure of Calanthes to cultivators attempting too much. On page 108 he says, "We often overlook the main issue in our attempt to out-rival other practitioners in the development of large pseudo-bulbs and long spikes of bloom," and then concludes by saying rather than run the risk of failure by injudicious methods of culture, it is wiser to be content with smaller but more solid pseudo-bulbs, which often result as satisfactorily," &c. The latter advice may be very well, but if "C. V. R.'s" employer was dissatisfied because his Calanthes were not as fine as others I am inclined to think he would try to have them better the next season. There is no doubt failure is brought about, in a great many cases, by three things—viz., firstly, too much water injudiciously applied during the earlier period of growth; secondly, by being grown in unsuitable houses too far from the light, and shading them too heavily during the

summer months; and thirdly by watering them too much when finishing, with the idea of keeping the foliage fresh. I have known more than one grower pride himself on having the foliage good when the flowers were nearly expanding. Such pseudo-bulbs I can easily understand would degenerate the next season, because they could not possibly be well ripened.

I grow annually about 600 plants of Calanthes Veitchi, vestita rosea, and lutea. Our largest pseudo-bulbs are about 15 inches long, with spikes 4 feet 6 inches long. I use stimulants largely. I keep them in a cool house when in flower—viz., from November till March. I have never had a failure as yet, and I wish others could say the same. If you think an account of our treatment would be of service to any of your readers I will gladly give such in a future issue.—LANCASTRIAN.

[Any information our correspondent can give will be most welcome.]

LEAVES BY THE WAY.

It is very pleasing to see that you are giving Orchids the attention they deserve. I hope that your readers will respond by giving particulars of their success or otherwise with members of this interesting family. It is not so much that we wish to know how this one or that will do in an Orchid house proper, but rather how it has grown under adverse circumstances. Houses that are given up entirely to each class of Orchids are few. I can fancy there can be little difficulty in growing these plants in properly constructed houses, but I find with many of them there is some little difficulty when we have to grow them in all sorts of places—in greenhouses, in vineries, and others in Fern houses—transferring them from one of these places to the other as the different seasons of the year demand. It is of this we would like to get particulars. Surely there must be much information husbanded through the vast circle of your readers, and if ever the saying of "Many can help one, when one can't help many" were a misleading maxim, it is so in this. How? do you say. Well, tell us how you have grown any one of this enchanting family outside the usual houses, that each class of Orchids is grown in. In a word, tell us in plain words how you have managed to grow and flower any Orchid without having an Orchid house. I shall be most willing to join in giving a few particulars, as I have been trying to grow a few of these lovely flowers without an Orchid house. The following I have flowered:—

Dendrobium Bensoniae	Cœlogyne cristata
" chrysanthum	Cypripedium barbatum
" chrysotoxum	" insigne
" crassinode	" Stonei
" crepidatum	" liveum
" Dalbousianum	" spectabile
" fimbriatum	Disa grandiflora
" " oculatum	Epidendrum vitellinum majus
" heterocarpum	Gongora atropurpurea
" Lowi	Lælia anceps
" nobile	" autumnalis
" Parishii	Ma-devallia Veitchiana
" Paxtoni	Maxillaria luteo alba
" Pierardi	Odontoglossum Alexandræ
" snavissimum	" Cervantesi
" thyrsoflorum	" cirrhosum
" Wardianum	" crispum
Aerides odoratum	" Pescatori
" " crispum	" Rossi majus
Ad. aurantiaca	" vexillarium
Calanthe vestita	Oncidium cucullatum
" Veitchi	" flexuosum
Cattleya amethystoglossa	" Jonesianum
" citrina	" Marshallianum
" Eldorado	" sphacelatum
" Gaskelliana	Peristeria elata
" intermedia superba	Phaius grandiflora
" chocoensis	Rodriguezia secunda
" Loddigesi	Stanhopea grandiflora
" Mendeli	Thunia Marshalliana
" Mossiæ	Trichopilia suavis
" Trianae	Zygopetalum Mackayi

Who need despair when we find that the above Orchids have flowered in a stove, vinery, and a Fern house?—J. T., *Hardwicke Grange*.

CŒLOGYNE CRISTATA.

I FULLY endorse "A. B.'s" statement as to the above Orchid deserving a prominent place. I consider it one of the most useful of Orchids, especially where a large quantity of choice cut flowers is required during the winter and spring months. I have a plant in flower now (February 4th) with ninety spikes, from which we have cut about thirty. We grow it in the intermediate house. With a few plants it could be had in bloom from November until March, or even later.—LANCASTRIAN.

I QUITE agree with "A. B." in his remarks on Cœlogyne cristata on page 90. We have here several pans of this beautiful Orchid which have flowered wonderfully well this season, one plant at the present time having 180 flowers. I may say the plants were grown near the glass, with only slight tiffany shading during the hottest part of the day. I think well ripening the pseudo-bulbs is a point to be aimed at.—W. GRIX, *The Gardens, Gledhow Hall, Leeds*.

PERHAPS the air of Surrey may be agreeable to the lovely Cœlogyne

cristata alba, as at Llanaway House, Godalming, under the care of the experienced gardener, Mr. Robert Jordan, there may now be seen a specimen which has borne fifty spikes, the much greater number showing five flowers on each spike, and these of the purest white.—M.

BUCKLAND SWEETWATER AND BLACK HAMBURGH GRAPES.

MR. JENKINS (page 108) appears to have misunderstood my remark concerning Buckland Sweetwater Grapes. I did not mean that I would place it before well finished examples of Duke of Buccleuch or Foster's Seedling, both of which I consider superior in flavour to Buckland Sweetwater. But when the last named variety is in perfection, and the others only moderate, I think it should have the preference, for when of a clear amber colour it is good in flavour. It is when it assumes a reddish brown tinge that it loses flavour.

quality is sweetness, what becomes of the "Hamburgh flavour", which has always been considered unique in this Grape, and which is often referred to in describing the flavour of other Grapes? Black Hamburgh is always described as a rich and highly flavoured Grape, and such it unquestionably is when in its true character. I do not know what your correspondent calls "real flavour," and which he says Black Alicante possesses, but he certainly cannot claim for it anything like the rich and vinous flavour of the Black Hamburgh. It is a good second-rate Grape if eaten while the berries are plump, but to place it before Black Hamburgh is giving it a place it cannot maintain.—A. BARKER *Hindlip*.

AURICULAS—CAMPBELL'S GREEN-EDGE.

I FIND that the sale of Mr. Cunningham's stock took place before not after, his death. Had I been able to call at first on Mr. Campbell



Fig. 22.—VANDA TERES AURORA.

Duke of Buccleuch, as I have seen it exhibited by Messrs. W. Thomson & Son, I should certainly place before any white Grape (Muscats excluded), but I have never seen it in anything like the perfection to which it is grown at Galashiels, although, I believe, there are a few places where it is well grown and finished. As generally seen at exhibitions it is small in bunch, uneven in berry, and with a greenish look suggestive of setting one's teeth on edge.

Foster's Seedling when well finished, in my opinion, should be bright and of a pale yellow colour; but at some of our London exhibitions the preference is given to bunches that are pale green in colour. I have tasted and compared berries in both stages to find out the reason of this decision, and have always come to the conclusion that the yellow berries were the best flavoured. I quite agree with Mr. Jenkins that it improves by hanging, and in a late vinery it will hang until December and retain its flavour.

I cannot help noticing here Mr. Stephen Castle's remarks upon Black Hamburgh (page 62). If, as he says, it has no flavour, and that its only

as I have now done, I should have spared Mr. Douglas some trouble. Mr. Campbell showed me the letter requesting his presence at the sale. It is dated February 4th, 1873, and the sale took place on the Saturday following. There the green edge in question was obtained. The seedling did not bloom that year; it did so the next, and in 1875 the plant itself was sent to Mr. Douglas. An offset was given to the late Mr. Jeffreys, and Mr. Campbell says that from these two have been obtained the existing plants of what is not his but Cunningham's flower. He is confident that there cannot possibly be more than the one variety in the hands of anyone. I may mention that Mr. Campbell remarked that he named a well-known self of his own raising Lord (not Marquis) of Lorne.

As to my giving the names of good old sorts, Mr. Douglas knows what he has himself recommended as varieties worth growing, and I repeat that I do not know new varieties to surpass these when they are properly grown. I do not consider those I have myself to have added greatly to the merits of my collection.—A NORTHERN AMATEUR.

ORCHID LORE.

[A paper by Mr. Lewis Castle, read at the meeting of the Lfc. Lewisham, and Blackheath Horticultural Society, January 28th, 1887.]

(Continued from page 116.)

IN the flowers of Orchids, however, we find the principal and most distinctive characters, and a little observation will enable anyone to understand their structure. In the majority of flowering plants it is well known there are two series of floral envelopes, termed the calyx and corolla, the divisions of these being respectively named sepals and petals. Usually the calyx is green or inconspicuous, while the corolla is coloured; but in the great sub-division of the vegetable kingdom the Monocotyledons, to which the Orchids belong, these two series of envelopes are frequently so much alike as to be scarcely distinguishable except as one forms an outer and the other an inner series of divisions. That also occurs in the Orchid family, but though both series are commonly coloured or white they generally differ in the distribution of the colours, or in the tint itself; while one division (the labellum or lip) of the inner series is greatly altered in form, assuming most peculiar shapes, sometimes considerably larger than the other parts of the flower, beautifully streaked or veined, and furnished with more or less prominent crests in the centre. This organ gives much character to the Orchid flowers, and also serves an important purpose in the case of those that are specially adapted for cross-fertilisation by insects, as it is a kind of landing stage for them, and also helps to attract them by its colouring or other peculiarities. In the *Cypripedium* it assumes the form of an old-fashioned slipper, and in some other genera it is shaped like a bucket.

Continuing our examination of an Orchid flower, the next organs we should expect to find would be the stamens and pistils with which we are familiar in other flowers; but in this case a strange metamorphosis has occurred, and in their place we find one central body (the column) really formed by a combination of these organs; a little cap—the anther case—at the apex covering the pollen masses, the pollen grains not being dust-like, as in most flowers, but connected together by a viscid matter in masses termed pollinia, the number of these varying in different genera or species, and furnishing one means employed by the botanist for defining their limits. The *Cypripedium* differs from other genera in a very important character—namely, instead of having the pollinia at the top they are found at the sides and towards the back of the column, one anther case on each side, the centre and upper part of the column being transformed into an angular or square body termed the staminode.

Beneath the anther case is the stigma, but generally so situated that without some foreign aid the pollinia can never reach it, and it is this assistance which insects are called upon to afford where the plants are growing wild. Taking advantage of this structure cultivators have paid much attention to hybridising, and the result is that we now have numbers of handsome hybrids which have been raised in England, in many cases surpassing their parents in beauty. Especially fortunate have Messrs. Veitch & Sons been in this work, and some of the most valuable Orchids in cultivation are those that were originated in the nurseries of that firm.

It would take too long to detail even a few of the innumerable contrivances by which the cross-fertilisation of Orchids is effected in a state of nature, but those who are interested in the wonders of plant life would do well to read Darwin's book on the subject, already noted, and they cannot fail to be impressed with what is there described in such graphic language.

Any consideration devoted to Orchids at a meeting of this character would be incomplete without some reference to their culture, and the concluding portion of this paper will therefore be appropriated to a few hints on the subject. In commencing the culture of any plants it is always a great help if we know the climate of the country or district where they are found in a natural state. Our first step, then, is to endeavour to imitate those conditions, though subsequent experience with close observation may induce us to modify our practice slightly. Heat, moisture, and soil are under our control to a great extent, but light we cannot command, nor can we exactly reproduce the atmospheric conditions that surround plants growing on mountain ranges at an elevation of several thousand feet above sea level. It does not follow, however, that because Orchids, or any other plants, grow in a particular site they will not succeed in any other, and those who imagine all the plants in tropical forests to be perfect in health and beauty are mistaken. Weak starvelings are there as we occasionally see them here, and the plants brought home by travellers or collectors, which, perhaps, excite the envy of growers by their enormous pseudo-bulbs and the remains of immense flower spikes, are those that were placed in the most favourable conditions, the survivors possibly of a severe struggle for existence, and probably as much superior to the majority of their relatives in the same district as an exceptionally well grown specimen may be here. Therefore, though it is of primary importance to know the principal climatal peculiarities of an Orchid's home, there are many secondary conditions that have a great effect upon the welfare of a plant which only the skill and observation of the cultivator can enable him to provide. A plant may be potted in the right compost, placed in the orthodox temperature, and treated generally in accordance with the rules of the best system of Orchid culture, and yet it may be unsatisfactory until removed to another position in the same house, where it may become as vigorous as it was previously unhealthy. I have seen instances of this kind, and no doubt many others have observed the

same thing. The moral to be drawn from this is, that all who wish to excel in Orchid culture must be close observers, and not merely content themselves with following stereotyped rules, though these are useful as guides to beginners.

When Orchids first came under the care of gardeners here, no doubt many plants were "killed by kindness"—that is, as they came principally from tropical regions the general impression seemed to be that they could not have too much heat. This occurred, too, at a time when Australian plants, with Banksias, Proteas, &c., were much in favour, which required dry stoves for their successful cultivation; with these in many cases were associated the newly introduced Orchids, the results being disastrous to the latter. Others perhaps provided more moisture in the houses, but subjecting all alike to a steaming hot atmosphere scarcely less injurious; so that, as few escaped the process of drying or par-boiling, Orchids gained the reputation of being difficult to grow, and it has taken a number of years to remove this erroneous impression. It is none the less erroneous because there are a few species that still puzzle the most skilful cultivators, since hundreds of the most useful can be grown with as little trouble as *Pelargoniums* or *Calceolarias*, though not under quite the same conditions.

The principal regions from which we obtain our Orchids are the following:—In the Old World, India, Burmah, and neighbouring districts, the Malayan Archipelago, and the Philippine Isles; in the New World, Central America, Brazil, Peru, and Mexico, while from Australia we have a few beautiful *Dendrobiums*. The greater portion of the countries named are within the tropics, but there is considerable difference in the temperature and climate, due mainly to the varying altitudes at which the plants are found. It is consequently not sufficient to merely know the district whence they are imported, for though they may come from a region notorious for an excessively high temperature at sea level, the plants may be found only upon mountain ranges where the temperature at night during some portion of the year falls to near the freezing point. In dealing with new introductions it is therefore necessary to ascertain all these points, and not unfrequently difficulties may be removed in the cultivation of longer known Orchids when a few particulars as to their surroundings can be procured. Unfortunately collectors are too reticent in these matters, and from a reluctance to expose the exact whereabouts of some choice discovery they give such indefinite details that they are sometimes practically worthless.

For large collections of Orchids three houses are required—namely, the cool house for the majority of the *Odontoglossums* and other plants from the higher regions in the tropics, and in this the temperature should never fall below 45° in the winter, nor rise above 70° in the summer, but both of these extremes should be avoided, if possible, as 50° is the safest minimum, and 65° as a maximum. Next comes the intermediate or Cattleya house, which may range from 55° (winter), to 80° (summer); and thirdly, the East Indian house, in which the greatest heat may be allowed, for 85° or even 90° in the height of summer will not injure the Orchids to be grown in that structure, while 60° is a safe winter temperature. In small gardens the cool house is the most useful, and by arranging those that require the most heat at the warm end of the structure, many usually grown in the intermediate house can be accommodated. The cool Orchids have become extremely popular in recent years, and there is abundant evidence that they will increase in favour considerably yet; indeed there are now so many beautiful species and varieties of *Odontoglossums* that these alone are worth a house to themselves. Many houses can be utilised in the cultivation of Orchids, and where a good range of glass houses already exists, it is by no means necessary to erect others specially constructed for these plants. Vineries, when the Vines are being forced, are capital places for many *Dendrobiums* and others which require a warm house, provided they are kept quite clear of insects. Stoves and warm conservatories can be employed in a similar way, but do not attempt to grow any except the half-hardy terrestrial Orchids in greenhouses. They are quite unfitted for the epiphytal species, and numbers of plants have been lost by placing them in such houses. The temperature would be suitable to the cool species if the atmospheric moisture was greater and the ventilation less liberal, for they cannot endure exposure to draughts of cold or dry air.

The supply of moisture is an important matter, and its due regulation requires some attention. During the summer months it is scarcely possible to have too much moisture in any of the houses, and the provision of open tanks filled with water is necessary, besides keeping the stages well damped and the plants liberally supplied. In the winter the moisture can be lessened, and the plants need more careful watering, though they must not be allowed to "dry off," except such as the *Calanthes* and a few others that need a well-marked season of rest. Those on blocks or in baskets are the most likely to suffer from neglect in watering or "dipping," and for this reason many species are now grown in pots with better results than when they were placed on blocks.

The chief point to be observed in ventilation is never to admit a great rush of cold air at one time, and it is a good plan to have pieces of loose canvas or similar material secured over the apertures of the ventilators inside the house, especially where the most tender plants are grown, and in the autumn or spring when the sun raises the temperature of the house too high yet the external air is cold. Little or no ventilation is needed in winter for the warmer houses unless the weather prove unusually mild, and during the summer the cool house ventilators can be constantly open.

These are the leading principles of Orchid culture, but it must be

borne in mind that it is important to procure the best peat and sphagnum, and the greatest care is needed to keep the plants clear of insects. Constant watchfulness and the immediate destruction of all pests when discovered will enable growers to prevent their injurious increase. A solution of softsoap is useful for applying with a sponge to remove thrips, scale, and other troublesome insects, green fly being readily exterminated by fumigation with tobacco. But this is a dangerous process, and unless conducted most carefully will result in serious damage. An invention, however, has just been brought into notice. The thanatophore seems likely to supersede the old method of fumigation. It is so constructed that a quantity of tobacco juice can be boiled, and the steam thus raised is forced through a pipe into the house. Mr. B. S. Williams has been experimenting with this lately, and speaks most highly of the results. Not only are the insects destroyed, but the flowers of the most delicate Orchids have been uninjured, a point that growers will readily appreciate.

But these somewhat rambling observations must be concluded, and though only a cursory review of "Orchid Lore" has been attempted, the subject is one that could be extended almost indefinitely. The chief object has been to point out that the popularity of Orchids rests upon a solid basis, and to convey a few hints to cultivators who are commencing with these interesting plants.

HYBRID TEA ROSES.

ROSE exhibitors will be obliged to "D. Deal," for his letter in last week's Journal respecting Lady Mary Fitzwilliam, showing plainly the company she should be associated with at an exhibition in competition. When first exhibited it was all confusion. I well remember the contest at Cardiff in July, 1885. My stand of H.P.'s contained a Lady Mary Fitzwilliam, and, I think, Dr. Budd's of Bath. I recollect after making up my mind how undecided I was whether I should allow it to remain or not; it was such a grand bloom. I decided at the last moment to run the risk and help to try the question, having La France and another in the stand, which I considered had as much Tea blood in them as the Lady. However, the Judge, referring to several Rose catalogues, found the Lady classed as a Hybrid Tea, and decided to disqualify it. Imagine my surprise a few days afterwards reading an account of the Manchester Show that the Judges there had decided Lady Mary Fitzwilliam to be the best bloom shown as a Hybrid Perpetual, and quite right. It should have been settled by the National Rose Society before the confusion arose.—THOS. HOBBS, *Bristol*.

ROYAL HORTICULTURAL SOCIETY.

FEBRUARY 8TH.
SCIENTIFIC COMMITTEE.

DR. M. T. MASTERS in the chair. Present—Messrs. W. G. Smith, G. F. Wilson, H. M. Ward, A. Michael, G. Maw, P. McLachlan, R. I. Lynch, J. O'Brien, G. Murray, J. D. Llewelyn, H. N. Ridley, A. H. Smee, Dr. Lowe, Rev. C. W. Dod, and Rev. G. Henslow.

Narcissi, species.—Mr. Maw exhibited specimens of several species. Commencing with *N. cyclamineus* he showed plants in flower from bulbs sent by Mr. A. W. Tait of Oporto, which were rediscovered by Mr. Johnston in 1885 or 1886. It was figured in "Le Jardin du Roy" in 1623 as *N. hispanicus minor*, *amplo calice foliis reflexis*, and in "Theatrum Floræ," pl. 1637, as *N. hispanicus minor luteus amplo calice foliis reflexis*.

N. pallidus præcox.—He exhibited a perfectly erect blossom of this species, a feature not uncommon amongst flowers usually pendulous, as in Campanulas.

N. Corbularia.—He read a communication upon this species of *Corbularia*, which appears in another page. Mr. Dod remarked that though called monophylla it often had two or three leaves, that it was confined to Africa, and had been wrongly identified with *Clusii* from the Pyrenees.

N. triandrus, variability of.—Rev. W. Dod exhibited specimen of this species, in which there was very great variations in the lengths of the stamens and style, a feature not known to exist in the Ajax section of Daffodils. Nothing was known as to the insects which visited it when in flower near Oporto early in March, or later in May elsewhere.

Narcissi, wild sp. from Portugal.—Mr. Burbidge contributed the following notes:—On the 23rd of September, 1886, I received from A. W. Tait, Esq., of Oporto, dry bulbs of ten or twelve kinds of *Narcissi*. These bulbs were at once potted in sandy loam, and were then placed on a sunny shelf in a cool greenhouse. Of these several have already flowered. The first to blossom was (No. 7) *N. pseudo-Narcissus*, a deep golden yellow form, having twisted perianth segments, which opened its first flowers on January 15th, followed a day or two later by (No. 8) *N. minor*.

On January 19th (No. 13) *N. cyclamineus* opened its first bud, and a day or so afterwards No. 11, a pale coloured long and slender tubed Ajax, which has been called N. Johnstoni by Mr. Tait, opened its blossoms, while now, January 7th, as I write the 5th of the series (No. 9), a fine sturdy form of *N. bicolor* is in bloom.

Two of the above—viz., No. 13 and No. 11, are so distinct and interesting botanically that I beg to lay rough sketches and flowers of them before the Scientific Committee of the Royal Horticultural Society. *Narcissus cyclamineus* (No. 13) is a very distinct species, and was rediscovered in 1886 by Mr. Edwin Johnston of Oporto. This plant was long ago known, and, as I pointed out on December 19th, 1885, in the *Gardener's Chronicle*, page 789, it is figured in the "Jardin du Roy," 1623, and also in the "Theatrum Floræ," 1637. There was a still earlier edition of this last-named work published in 1622, but I have not seen it, and so cannot vouch for the plant being figured therein. If it is so, however, that may prove to be the earliest illustration.

It has several times and in several places been stated that this *N. cyclamineus* is alluded to in Parkinson's "Theatrum Botanicum" (1610), but

I have failed to find any reference to any *Narcissi* in that work, so that it seems possible an error of reference has occurred through the similarity of titles, the "Theatrum Floræ" having been mistaken for the "Theatrum Botanicum." In giving some account of the "Theatrum Floræ," cd. 1637, in "Gardener's Chronicle" (l.c. supra), I in part copied the figure of this quaint little reflexed Daffodil with the object of directing attention to the probable existence of such a peculiar and long-lost species. The apt name of *N. cyclamineus* was applied to the drawing in "Theatrum Floræ" by the late Adrian Haworth when writing the last edition of his "Narcis. Monog.," published by Ridgeway in 1831, although, so far as evidence goes, he does not appear to have seen the plant either living or dried. Indeed, sixteen years later the late Dean Herbert ("Amaryllidaceæ," 1847) ridicules Haworth's idea of such a plant's existence, and this, as we now know, on false grounds. Both Mr. Johnston, its rediscoverer, and Mr. Tait, who generously sent dried bulbs to English and Irish gardens, were anxious that the plant should be named *Narcissus Henriquesi*, in compliment to the well known and highly esteemed Professor of Botany in the University at Coimbra, and seeing that the plant living or dead had never been seen since the time of Linnaeus until last year (1886), and has never been authoritatively figured and described, it seems a matter for regret that this could not well have been done. Mr. Tait, alluding to *N. cyclamineus* in his "Notes on the Narcissi of Portugal," says it grows on the banks of a stream in sandy loam at an altitude of 300 feet, in which position (presumably near Oporto) it flowers from February 28th to March the 10th.

As I send herewith living specimens and a careful sketch or drawing I need not further allude to the plant itself, except to say that I consider it to be simply a small, reflexed perianth, short-tubed "Ajax" or "Daffodil," its most characteristic point being the extremely reduced flower tube.

The other *Narcissus* to which I wish to allude is the pale sulphur-flowered *N. ("Ajax") "Johnstoni"* of Mr. Tait (v. "notes" l.c. supra). This also grows at an elevation of 300 feet on the banks of a stream in sandy loam. Of this I send a partially dried specimen and a rough tracing of a drawing as made from fresh flowers, and these will serve my purpose better than a description. As an "Ajax" or form of *N. pseudo-Narcissus* this plant is peculiar in having a long, narrow, or clarinet-shaped flower tube, this tube with the ovary at its base being equal in length to the cylindrical, blunt-mouthed crown. The perianth segments are in fresh full-grown flowers more or less patent, and the crown is $1\frac{1}{4}$ inch long, and, like *N. muticus*, rather abruptly cut off at the free end. The flower tube instead of being peculiarly short and obconical, as is that of *N. muticus*, is on the contrary more like that of *N. incomparabilis*. The whole flower is of a bright but pale primrose or sulphur yellow, and altogether appears quite distinct from any other "Ajax" or Daffodil known to me.

N.B.—The numbers used in these notes are those of Mr. Alfred Tait as employed in his "Notes on the Narcissi of Portugal," published at Oporto in May, 1886.—F. W. BURBIDGE, F.L.S., M.R.I.A., *Trinity College Botanical Gardens, Dublin*.

A botanical certificate was unanimously awarded to Mr. Tait for his introduction (by his rediscovery of it) of *N. cyclamineus*.

Lapiedra gracilis.—Mr. Maw drew attention to this Morocco Amaryllid, described in J. Bal's *Spicilegium Floræ Maroccanæ*, "Journ. Linn. Soc.," Bot., vol. xvi., p. 678-9, as *Lapiedra gracilis*, Baker, n. sp., but which is, without doubt, *Tapeinanthus humilis*. It was described from a faded specimen (intermixed with *L. ucojum trichophyllum*) in the Kew Herbarium, collected by Schomburgk near Tangier.

Crocus Karaduchorum.—He also exhibited a drawing of *Crocus Karaduchorum*, collected by Mr. Hubbard in the neighbourhood of Sivas in 1885, 3° or 4° west of Mikus and Sherwan, where it was originally discovered by Theo. Kotschy. It is allied to *C. zonatus* (of which he exhibited a drawing) of the Taurus, but a much smaller plant, with exceptionally small leaves, lasting on till the ensuing flowering time; two sets of leaves thus occurring contemporaneously, one being hidden within the sheathing leaves.

Scales on Lælia.—The following report was received from Mr. MacLachlan:—"Those scales on the leaves of *Lælia* brought by Mr. Boscawen to last meeting of Scientific Committee prove not to be Coccids, but the sedentary females of a very abnormal form of Aphides—*Cerataphis lataniae, Boisduval*. They were found originally on *Latania*, but have also occurred on several Orchids and other hothouse plants. An account of them will be found in the Appendix to vol. iv. of 'Buckston's British Aphides,' p. 193, plate 131. It was originally described as a Coccus, but when the male became known the real position became evident."

Some discussion followed as to the real nature of the white fringe-like border, whether it is a waxy secretion as described, or membranous, as Mr. Michael suggested might possibly be the case, judging from analogy.

Maréchal Niel Rose Deformed.—Dr. Masters exhibited a cutting of this Rose which had a large tuberculous swelling at the base. It was referred to Mr. H. Marshall Ward for examination and report.

Euonymus japonicus Fasciated.—Mr. O'Brien exhibited a specimen showing this peculiarity.

Cordyceps Taylori.—Mr. W. G. Smith exhibited a specimen of this remarkable parasitic fungus with antler-like processes, the whole growing from the neck of a large caterpillar. It was received from Baron Müller from Australia.

Primula sinensis Malformed.—Dr. Masters exhibited a plant showing cordate ovate leaves of an unusual but probably primitive type. He remarked that this species has lately been found wild on the mountains of Hong Kong.

Some remarks were made by various members on the hybridisation of Primroses, Mr. Maw observing that there were from fifteen to twenty known natural hybrids in Europe, but *P. sinensis* was not known to have ever been hybridised by any other species.

Mr. O'Brien remarked that when attempts were made to cross, the offspring were purely of the maternal form. This was so with *Zygopetalum Mackayi* and with *Lilium auratum* when crossed with other species. When crossed with *L. tigrinum* the stems had bulbous characteristic of that species.

A reply was received from Mrs. Sterling in acknowledgment of the letter of condolence from the Scientific Committee on the death of her father, Mr. A. Grote.

THE NURSERY AND SEED TRADE ASSOCIATION (LIMITED).

THE annual meeting of this Association was held at the offices of the Association, No. 25, Old Jewry, on the 7th inst., Mr. N. N. Sherwood, the President, in the chair. From the Report of the Committee of Management, which was read and adopted, it appeared that there had been collected in respect of debts which had been treated by the members as bad and handed to the Association for collection £2419, as against £1276 in 1885, and that the number of applications made by the members for information as to the status of intending customers had considerably increased. In addition to this it was also stated that several failures in the trades which had occurred during the year had been investigated by the Secretary on behalf of such members as were creditors and their interests protected. The balance sheet compared favourably with that of the previous year, and showed a marked increase in the receipts. The number of members has steadily increased, and the interest in the Association has grown proportionately. At the suggestion of the President a committee was appointed for the purpose of considering any questions which might arise affecting nurserymen and seedsmen, with a view to taking combined action thereon, and the members were invited to communicate with the Secretary whenever any such questions arose.

In the evening the annual dinner took place at the Guildhall Tavern, when the President again presided, and in responding to the toast of "Success to the Nursery and Seed Trade Association," said that, although the report that day adopted was the tenth annual report, he was responsible only for two, and of those the second showed that the operations of the Association had during the past year increased twofold over those of the first, an indication that the Association was recognised by its members to be of use to them, and he believed that when its advantages became more widely known many more members would join it. Mr. Johnson, in proposing the health of the officers and committee, said that from personal experience he could say that nurserymen and seedsmen in the country were only waiting to see if the affairs of the Association continued as they had begun to prosper before becoming members of it, and he thought that the report showed that the Association had during the past year made rapid strides. Mr. Veitch (J. Veitch & Sons, Chelsea), Mr. Laing (Laing & Son, Forest Hill), Mr. C. A. Hooper (Hooper & Co., Limited, Covent Garden), Mr. Watkins (Watkins & Simpson, Exeter Street, Strand), Mr. Manning (Messrs. J. Veitch & Sons), and several other prominent members of the trades were present, and took part in the proceedings.

NATIONAL CHRYSANTHEMUM SOCIETY.

FEBRUARY 14TH.

A MEETING of the General Committee of this Society was held on Monday evening last at the Old Four Swans, Bishopsgate Street, the Vice-President, Mr. R. Ballantine, in the chair. There was a large attendance of members, the business of the evening being to elect the Floral Committee, appoint stewards for the exhibition, and to consider the sub-committee's recommendations respecting the schedule and the three shows to be held in September, November, and January.

The Royal Cornwall Society was added to the list of affiliated societies, and after several new members being elected, nominations were received for the Floral Committee. It was proposed that the number should be increased to twenty, but it was decided by a large majority that the number should remain as before—namely, sixteen, exclusive of the officers of the Society. Twenty-six were nominated, and the following were elected:—

FLORAL COMMITTEE.—Messrs. T. Bevan, H. Cannell, Lewis Castle, R. Dean, N. Davis, G. Gilbey, G. Gordon, C. Gibson, E. Kemp, J. P. Kendall, G. Langdon, H. Mardlin, R. Owen, G. Stevens, R. Swift, and J. Wright (Temple).

Mr. Holmes expressed his thanks for the assistance rendered him at the past shows by the stewards, and the following were nominated for the present year:—Messrs. Drain, Addison, Boyce, Crane, Bevan, Ballantine, Langdon, Figgures, R. Payne, Kemp, Blake, and Dean. It was resolved to publish in the National Society's schedules the dates of the affiliated societies' shows, also to give the names of all winners of the National Society's medals. It was determined that the fees to the judges at the November show be one guinea, and at the other shows half a guinea. The date fixed for the respective shows are as follows:—September 14th and 15th; November 9th and 10th; and January 11th and 12th. Floral Committee meetings to take place on the following dates:—September 14th; October 12th and 26th; November 23rd; and December 7th at 1.30 P.M., and on November 9th at 12 noon. Some slight alterations in the rules were then announced, and it was decided that the Society's catalogue should be considered the guide as to varieties and their classification. The November schedule was read, the principal additions to which were the Veitch Memorial medals and prizes in six classes (nurserymen excluded). Messrs. Davis and Jones's silver cup or five guineas for the best six blooms of Chrysanthemum Mrs. Norman Davis, and Messrs. Cannell & Sons' prizes of £10, £5, £3, and £2 for twelve new Japanese varieties, the members of the Floral Committee to make the award in the latter class.

In connection with one of the classes it was proposed to insert the words that "an amateur be one who does not employ one or more permanent gardeners," and in respect to this considerable discussion ensued, several delegates from affiliated societies pressing as an amendment what they considered a more exact definition—namely, that "an amateur be one who does not employ any skilled labour or derive any pecuniary benefit from the cultivation of plants." The matter was argued at some length, and the amendment was finally carried, but when put as a resolution an amendment was moved and adopted to the effect that it should not apply to the National Society, being merely given as a guide to affiliated Societies. The schedules of the September and January Shows were read and adopted with little discussion, the following Judges being appointed:—September Shows—Dablias and Gladioli, Messrs. Kirtland and Henshaw, with a reserve of Mr. Tranter; Chrysanthemums, Messrs. Gordon and Dean. November Show—Plants, Messrs. Donald and Prickett, with a reserve of Mr. Ward; Japanese blooms, Messrs. Mardlin and Molyneux,

reserve Mr. Beckett; Incurved blooms, Messrs. Wright (Fleet Street) and Gordon, reserve Mr. George; fruit and vegetables, Messrs. Barron and Douglas. January Show—Messrs. Gordon and Dean. The Superintendent of the Shows in all cases to act as Referee. The meeting concluded with votes of thanks to the Chairman and officers.

SERICOGRAPHIS GHIESBREGHTIANA.

MOST useful is this plant for affording a supply of sprays for vase and other modes of indoor decoration during the dull months of autumn and winter. Equally useful also are the plants for conservatory and dinner-table decoration during the same period of the year. It is seldom that this plant is found cultivated in large numbers after the manner of Poinsettias, but it is well worthy of being so grown for its glossy leaves, and the lightness and brightness of its feathery spikes render it an admirable associate of plants of rigid habit and stately



Fig. 23.—*Sericographis Ghiesbreghtiana*.

form. The soft scarlet of its flowers is a colour which is pleasing, and well-grown plants are worthy objects of admiration.

The cultivation of this plant calls for no special skill, it being as easy to grow as a *Pelargonium* and as certain to flower when its season arrives in October, when it continues in beauty for three or four months. Cuttings inserted at the present time or a little later, and the plants grown on the shelf of a stove until May, potting and stopping them as required, and placing them in frames in June to make their summer growth, will be attractive plants in the autumn, when they should be arranged in a warm conservatory.

After the flowering season is over water should be withheld to facilitate the ripening of the shoots, when the plants may be cut down the soil be shaken from the roots, and be treated precisely as are show *Pelargoniums*, with a little warmer temperature and moister atmosphere. Plants are thus produced 3 feet high and through, huge globes of scarlet sprays.

A suitable compost for the plants is a mixture of loam, peat, and leaf mould in their early stages of growth, finally potting them in richer soil

by substituting decayed manure for the peat. I fear that this useful plant is not cultivated so extensively as its merits deserve, and hence I ask the insertion of these notes.—A CONSERVATORY FOREMAN.

REVIEW OF BOOK.

A Manual of Orchidaceous Plants Cultivated under Glass in Great Britain. Part I: Odontoglossum. By JAMES VEITCH & SONS, Royal Exotic Nursery, 544, King's Road, Chelsea, S.W. 1887.

CONSIDERABLE interest was excited by the announcement, some time since, that Messrs. Veitch & Sons had a work on Orchids in preparation, and its appearance has been eagerly awaited by numbers of growers. The name of the firm has been so long identified with Orchids, they have been the means of introducing so many to commerce, either by importation from abroad or by raising hybrids at home, that it was confidently expected a work from such a source would possess far more than ordinary value. Judging from the first part now before us these expectations will be fully realised, and the work will take a high position amongst Orchid literature. The form adopted is quite distinct from any similar work previously issued, an admirable monographical method being followed, useful alike for general reading and special reference. The first part is devoted to the genus *Odontoglossum*, and it is announced that this will be followed by *Cattleya* and *Lælia*, *Dendrobium*, *Cypripedium*, &c., and it can be imagined that, as eighty pages are occupied with the comparatively small genus *Odontoglossum*, it will form some substantial volumes before it is completed—that is, if it is intended to treat all the genera in the same way.

In selecting the *Odontoglossums* as an introduction to their work, Messrs. Veitch & Sons have acted boldly, and have also performed a most useful service. Probably no genus has hitherto furnished such a complex and unsatisfactory system of nomenclature as this. The recognised well-marked species are mostly extremely variable; in many cases all lines of demarcation between species have been broken down by intercrossing in a state of nature, and scores of forms are being continually introduced that puzzle both botanists and horticulturists as to their correct position. As a result, several have been assigned the rank of species, which further examination and the introduction of other intermediate forms have proved to be unreliable. Again, almost every slight variation has been dignified with a name of some kind, until a deplorable confusion has been created that the best directed efforts can now only partially remove. The authors of the *Manual* now under notice have, however, taken a decided step towards the rectification of the nomenclature, which, if consistently followed, will certainly simplify the matter. The principle adopted is to assign all natural hybrid or cross-bred forms to the species which they most nearly resemble, the determination of which could only result from an extended experience and close observation of the various types. Then, again, in placing these under their respective species, the rank of variety has been confined to those which exhibit some definite characters other than those of only size and colour, the last-named being denominated sub-varieties, and including the majority of those which are so frequently appearing in collections, generally to receive the names of their respective owners. In regard to the sub-varieties, in some cases the ordinary botanical names are retained, but with others, like *Odontoglossum Pescatorei* Veitchianum, the form of name has been altered to *O. Pescatorei*, Veitch's variety. Where they are so distinct as this, and have, moreover, been both figured and described under the title, we doubt if this innovation is a wise one, for it gives an awkward form to a name that was otherwise quite consistent. With this exception, we consider the system of nomenclature adopted one that can be highly commended, and which might be advantageously generally adopted.

The book is uniform in size of page with the "*Manual of the Coniferae*," from the same firm, and is illustrated with thirty-eight woodcut illustrations, some occupying the full page, showing the habit of the plants, as in the frontispiece representing Baron Schröder's plant of "*Odontoglossum Pescatorei*, Veitch's variety," others giving the single flowers of natural size with a profile view of the column and lip. Two excellent maps are also given showing the geographical distribution of the species in both North and South America, the names of the species being printed in the regions where they are most abundant, the extremes being *O. maxillare* in Mexico, about lat. 20° N., to *O. compactum* in Peru, in about lat. 13° S.

The introductory chapters deal with the generic characters, which are described very fully, and the geographical distribution including many interesting facts as to localities, climate, &c. A short concise chapter is devoted to culture, and then the description of species and varieties is commenced on page 13, taking them in alphabetical order. A condensed botanical description (in English) is given of each species, with references to the principal works where they have been described or figured, either under their accepted name or synonyms. This is useful, but from a printer's mistake probably, the first reference given is incorrect, the figure of *O. biconense* appearing in the "*Botanical Register*" in 1840—not 1846 as there stated. The botanical authorities for the names is not given immediately after the names, as is usual in such works, but is placed first in the references following the description. With each species the varieties and sub-varieties are named, references also being given to works where they are specially noted. Much interesting historical and cultural information is furnished with the descriptions. The index gives both accepted names and synonyms, the latter in italics, but a word of explanation was needed respecting this, as the excluded

species, *O. Phalænopsis*, *O. vexillarium*, &c., which are now referred to *Miltonia*, are given in the ordinary Roman type. The work is well printed in bold clear type, on substantial slightly toned paper, and considerable care has evidently been exercised in its production to render it accurate, reliable, and exhaustive.

SEASONABLE HINTS ON FLORISTS' FLOWERS.

THE worst of the winter is, we hope, over, and the lengthening days remind us of work to be done in all departments of the gardens, and this month especially is a busy one with florists. Collections have to be overhauled, repotting done, and many, what some people would call "fiddling," operations to be carried out, but these little attentions are very essential to the well-being of our favourites.

AURICULAS.—Among the many changes which have taken place in the cultivation of the Auricula there has been none more radical than that of spring top-dressing. It used to be considered as one of the most necessary operations for successful cultivation, that at this season the soil should be removed with a blunt stick to the depth of an inch or more, and fresh compost supplied. It was supposed that this was absolutely necessary to give strength to the plants, as it was argued that the grist of the soil had been washed out by watering since they were potted—a period of eight or nine months. There is some reason in this, but when we find growers like Mr. Horner and Mr. Douglas saying it is unnecessary, one cannot say that we must do it. I did not top-dress last year, and I do not think that the plants suffered; but I am hesitating about it this season, and shall probably try some both ways. When it is done care must be taken not to disturb the roots, and the compost used should not be too rich—say two parts loam and one part well decayed manure. The pots should not be filled too much, as then water is apt to run over the edges without entering the soil. Where top-dressing is not done the collection should be carefully gone over, the soil stirred, and care taken that there is no space between the soil and sides of the pot; otherwise watering will be a useless operation, as the water, instead of entering the ball of soil, will run down the sides. Small offsets which were taken off last summer may now be potted in small pots, and so their size will be increased before the potting time comes round, as I have found in former years a cold winter such as we have had is by no means so injurious as a moist damp one.

CARNATIONS AND PICOTEES.—It will be too early to do anything with these except where they are grown in beds. These should be examined and the plants firmly pressed into the soil, and small sticks had better be put to them, unless this has already been done. Those in pots should be looked over and any decayed leaves pulled off, and the soil of the pot stirred up. Many have been troubled with the Carnation maggot. I am glad to say that I have not seen it amongst my small lot. Compost should be turned over, and if there is any danger of wireworm being in it should be carefully hand-picked, as one of these will quickly destroy a plant, and as they are very fond of fresh turves, which forms the best ingredient for compost, a good search will generally be rewarded by "a find."

PINKS.—The beds on which these have been grown should be carefully gone over when the weather is dry enough for the operation, and the plants, which have probably been a good deal loosened by frost, should be firmly pressed into the soil, and the surface of the bed generally stirred up. It is remarkable how very little this sweet and pretty flower is now cultivated in the south of England, but it is very rare to find any collection now, in or around the Metropolis or the south generally. The complaint of want of variety in them has no doubt something to say to it, but one cannot forget that those two old and thorough florists of the past, John Keynes and Charles Turner, won their spurs as exhibitors of Pinks.

PANSIES.—This has been a trying winter for these where they have been grown in beds. The snow, frost, and wind have been alike hurtful to them, and many gaps will be found, and many cripples, I fear, amongst the survivors. They will now require to be carefully gone over, pressed firmly into the soil, and when the weather is dry the beds ought to be top-dressed with well decayed manure and leaf mould.

GLADIOLUS.—It will be too early to do anything with these, although I generally begin to plant mine early in March. It has been a good winter for mellowing the soil, and the beds ought to be in a good condition for planting. Collections should be examined, and if varieties are required no time should be lost in procuring them. I may here say that the most remarkable corms I have ever seen are some which were grown by Mr. Burrell of Cambridge. They averaged most of them from 10 to 12 inches in circumference, and were exceedingly healthy, having that silvery coated appearance so characteristic of the French corms. I have never in my thirty-years experience of Gladiolus growing seen such corms, showing not merely good cultivation but also how favourable the soil and climate of Cambridge are for their culture.

RANUNCULUS.—The season so far has been especially favourable for the beds which had been prepared for these pretty flowers. There has been abundance of moisture and sufficient frost to thoroughly sweeten the soil, and now the weather is dry, so that the soil is in a thoroughly good condition for planting, which should be done at the first favourable opportunity. The rows should be about 5 inches apart, and the roots, about the same distance in the rows; they should not be more than about 1½ inch in depth, and the tubers should be pressed firmly into the ground, so that they may not easily be thrown out by worms. There can be no second opinion, I think, as to the beauty of these old fashioned

flowers, nor do I think that what are called French varieties are at all to be compared with them.

ROSES.—It is hardly time yet to be doing much amongst these, and I, therefore, defer any observations upon their treatment. They have had in many cases a hard time of it, but from all that I have seen and heard I do not think they have suffered very serious injury.—D., *Deal*.



HARDY FRUIT GARDEN.

At one time it appeared several kinds of fruit would soon be in bloom, the mild weather both by day and night tending to encourage the rapid development of the buds. Severe frosts have now intervened, and cold easterly winds will materially check the growth, thereby rendering our chance of a good fruit crop somewhat more certain. A long spell of dry weather enabled many cultivators to complete the work of planting earlier and in better style than is often the case after a long frost, though even under these conditions the late autumn-planted trees will yet as a rule make the best progress during the season. The latter, where disposed against walls, may be properly secured by ties or shreds and nails, as the ease may be; but those recently planted ought not to be permanently fastened for some time longer, as the trees must be allowed to follow the inevitable settlement of the soil. In cold and late localities much planting yet remains to be done, and in all such cases extra pains should be taken in the operation. If the ground is broken up two spits deep this should be carried out as much as possible throughout the ground or border, as this disturbing the subsoil interferes with the natural drainage, the water collecting in the holes. Thorough drainage, not much manure, and rather high planting, is best calculated to cause the trees to form sturdy fruitful growth, and if plenty of turfy loam is available this is the best material for planting the trees in. All trees in the open ground, especially pyramids and standards, ought to be securely staked, or otherwise frequent disturbances by strong winds has a most injurious effect upon the roots. In many instances three stout stakes will be required, these being inserted about 9 inches from the stem. The trees may be fastened to these either with wire, stout tar twine, or haybands. If either of the two first-named are used a bandage of cloth or sacking should be passed round the stem of the tree in order to prevent the ties from cutting or chafing the bark.

PROTECTING APRICOT BLOSSOM.—In the warmest districts Apricots will soon be in bloom, and there is every prospect of plenty of well formed flowers. Unfortunately they are very easily injured by frosts, and must be protected in some way, or not much fruit can reasonably be expected. Glass copings and blinds are the most reliable protectors, and where the trees are worth covering the value of the fruit saved and ripened with their aid soon compensate for the outlay. The revolving copings are the least trouble, as these admit of rains and falling of the foliage and watering the borders, heavy dew also checking the spread of red spider. The fixed framework from which the glass can be removed or refixed at will are also very serviceable. In cold wet localities the glass should not be removed at any time, too much moisture at the roots frequently proving fatal to the trees. Whatever form of coping is adopted it ought to be in readiness to protect the trees before the flowers are really expanded, the blinds, however, not being opened out till absolutely necessary. Nor should they be open during mild days, as they have a tendency to weaken the flowers, but during the prevalence of cold or easterly winds the trees should have the benefit of their protection both by day and night. Glass coping not being available, some other plan of protecting ought to be adopted. Blinds made of cotton netting, frigidomo, glass sheeting, Hessian or serim canvas, the latter being the cheapest, the two former the best, are useful for many purposes after they have saved the Apricot blossom. With the aid of a few curtain rings they may be made to run on stout wires attached to the under side of a 9-inch flooring board. The latter, besides being bracketed under the wall coping, will be further supported by long poles. These being inserted in the ground about 3 feet from the wall at easy distances apart, or to suit the width of the blinds, serve to keep them from dashing against the trees, as well as for keeping them in position whether open or closed. We have saved crops with the aid of poles and Russian mats, but we much prefer blinds. Ordinary fish netting doubled or trebled and hung loosely from the top of the wall or coping board, poles being used to keep it clear of the trees, will ward off a moderately severe frost, as will also branches of Spruce Fir, but at their best they are only makeshifts resorted to by those who feel they must do something to protect the trees.

PEACHES.—These, whether loosened or unloosened from the walls, are moving, and will soon be in bloom. Pruning and re-nailing ought therefore to be completed at once. If the summer disbudding and regulating the young growths was well attended to, not much pruning ought to be necessary. Plenty of medium-sized well-ripened young

growths are required, these never failing to bloom strongly. A too free use of the knife is apt to be followed by sappy unfruitful growth, while if we go to the other extreme, the best is formed on the top of the wall where it is of little service, the lower portion and centre of the tree soon becoming naked. Our first proceeding is to shorten many of the longest main branches to good well placed side branches. In some instances the main branches may with advantage be cut back to near the main stem, but this ought not to be practised with the more vigorous trees. The next step is to cut out as much of the last season's fruiting wood as may have escaped the autumn pruning, its place being taken by the young bearing wood. Whether the latter shall be shortened or not depends upon its character. If strong and well ripened it is best laid in to its full length. Medium-sized shoots, or any say that are rather smaller than, or about the size of a slate pencil, may, if furnished with triple buds, the central one of these being a wood bud, be shortened to about 1 foot or rather less in length. The more weakly shoots are usually furnished with fruit buds, only the point being capable of forming a leafy growth. It follows if we shorten such shoots we spoil them altogether, as fruit very rarely matures on wood unfurnished with a leading leafy growth to attract necessary support. Where green or black fly is apt to be troublesome the trees should be syringed with petroleum added to water at the rate of 2 ozs. to the gallon of the latter. As it will not mix properly, every other syringe should be forcibly returned into the can, this preventing the oil from collecting on the surface of the water. Trees badly mildewed ought to have been lifted and replanted in fresh compost last autumn. At the present time all that can be done is to freely shorten the affected wood and coat over that reserved with lime and sulphur. Later on a solution of lime and sulphur is the best preventive.

FRUIT FORCING.

PINES.—A batch of suckers will have to be started about the beginning of March to provide plants to give a succession of fruit from next December onwards; therefore attend to the preparation of soil for potting, and a fermenting bed in some close structure to generate and maintain a bottom heat of 85° to 90° near the surface, and with means of maintaining a temperature of 55° to 65° by fire heat with regularity. Plants which were selected about the beginning of last December and started by an advanced temperature will now be showing fruit, and as it is advisable to forward ripening of the fruit as much as possible, the temperature about them should be maintained at 65° to 70° at night, and 5° to 10° more under favourable conditions in the daytime, opening the house at 80°, allowing an advance to 85°, and close about that degree, utilising the sun heat. With the fruit advancing the plants will require more water at the roots, examining the whole stock once a week, as with increased light and heat the need for water will increase. Recently started plants to succeed those already named should have a night temperature of 65°, and 70° by day artificially, which will be sufficient for them for some time longer.

FIGS.—*Early Forced Pot Trees.*—The earliest trees which are subjected to bottom heat will require to be regularly supplied with water, as the neglect of this would prove injurious to the crop. Syringe the trees morning and afternoon when the days are fine. If a second batch in pots are wanted the trees may now be started, and they will make a succession to the earliest forced, giving them the same course of treatment as has been already advised.

Early Forced Planted out Trees.—The trees permanently planted out in houses where forcing was commenced early in the year will be making growth, and require tying to the trellis as they advance, and thinning out where too crowded, pinching the shoots which issue from the base of the fresh terminal shoots at the fourth or fifth leaf. Keep the night temperature at 55° to 60°, and 65° in the daytime by artificial means; commence ventilating at 65°, and allow the day temperature to rise to 75° or 80° from sun heat, closing at 70° with sun heat, allowing a free circulation of air when the temperature is above 70°.

CHERRY HOUSE.—Continue the temperature recently advised. The delicate clusters of flowers will soon be expanded. If there be the least trace of aphides fumigate before the flowers are fully open. Artificial impregnation must be resorted to when the pollen is ripe, selecting bright sunny days when the house is very freely ventilated, applying the pollen to the stigmas with a camel's-hair brush. If bees appear upon the scene it is a good sign. Damping is still necessary once or twice a day, avoiding, however, a confined atmosphere, leaving a chink of air on constantly. If the border needs water supply it, and do not neglect trees in pots.

VINES.—*Early Houses.*—With increased length of days and a continuance of mild weather forcing may be pushed on rapidly. Ventilating and the supply of moisture must have daily attention, and be regulated according to the weather. Vines in flower should have a night temperature of 65°, and the air of the house should be kept rather dry. Remove all unnecessary laterals, tie out in their permanent places those that are left, and endeavour to have every part of the trellis filled with as much foliage as can be fully exposed to light. Thinning the berries must commence with free-setting sorts as soon as they are formed, but any that frequently produce stoneless berries should not be thinned until it is seen which berries take the lead in swelling. Remove duplicate bunches, leaving the best set and most compact, and avoid the too common practice of overcropping. All inside borders should be frequently examined, and when water is required it should be given a few degrees warmer than the mean temperature of the house. The ferment-

ing material on outside borders must be attended to, and when the heat is declining renew it by the addition of fresh leaves and litter. Vines in pots must not lack moisture at the roots; supply them with liquid manure, and renew the surface dressings from time to time as necessary.

PLANT HOUSES.

Paneratiums.—Those that have had a good season of rest may now be repotted or top-dressed. If the latter, use two-thirds loam and one of cow manure prepared as previously advised. If they need the former the compost advised for Eucharis will suit these plants well. Too much drainage should not be employed, as the plants root deep and with great freedom. In repotting shake away the whole of the old soil from the roots, and be careful not to bury the bulbs, or a large percentage of the soil will not contain a single root. Spread out the roots carefully near the surface, for they are certain before the end of the season to be crowded round the drainage. These plants will grow in almost any position in the stove after potting until they are again established, even standing under the shade of large plants; syringe liberally, but do not give too much water. Watch for thrips, for if there is any in the house they are certain to attack the under side of the foliage of these plants.

Hymenocallis macrostaphana.—This is so closely allied to the above, that in gardens they are looked upon as the same. The treatment is the same, and those who do not possess the plant should obtain it without delay, for it is undoubtedly superior to any of the *Paneratiums*. It possesses narrow foliage fully 3 feet in length, and flowers with great freedom during July and August under ordinary stove treatment.

Gloriosa grandiflora.—The bulbs of this useful stove climber may be shaken out of the old soil in which they have been resting, and may be potted and started into growth. This plant will do well in sandy loam and one-seventh of manure, or in equal parts of peat and loam. If placed in a temperature of 65° the tubers will soon start growing, when the pot containing them should be placed in such a position so that the shoots can be trained under the roof, unless they are to be trained upon a balloon-shaped trellis. The soil in each case should be thoroughly warmed by placing it in the stove the night previous to use. Be careful also that the soil to be used is in a proper state of moisture.

THE BEE-KEEPER.

PRACTICAL BEE-KEEPING.

No. 3.

WE must next consider what race of bee is most profitable to the ordinary bee-keeper. We must touch on the reproduction and perpetuation of the species, and point out how it is that the different races possess various characteristics, some useful, and others a hindrance to the production of surplus honey. We must also, in choosing which race of bees is likely to yield the largest profit, refer to the benefits and difficulties derived from climatic and other conditions in various localities, and finish the argument by stating our own opinion, based upon all these considerations, as to the advisability of the average bee-keeper attempting to keep a particular strain or race of bees unless there are circumstances in his individual case, which, by placing him in a more favourable position for the purpose, enable him to contend more successfully with difficulties which can hardly be surmounted by his less happily situated neighbours.

For the production of comb honey a strain of bees is required which has little disposition to increase by swarming, unless the bee-keeper is so negligent of his own interests as to allow great overcrowding and consequent enforced idleness. As with the population of overcrowded cities there is a tendency to migrate to new lands as yet but sparsely occupied by man, so with bees: but the impulse in these insects is far stronger than in man, and why? Because bees in a natural state, where man does not interfere with the internal arrangements of the hive, have, generally speaking, when a hive is in a normal condition, only one means by which the race may be perpetuated. By sending forth a swarm headed by the old queen—possibly almost worn out with labour—the throne is left for a young monarch, hatched under the most favourable conditions possible—the swarming impulse. This queen again may, if the bees are strong enough in numbers, give place to a still more youthful successor, and so another colony goes forth, under the happiest omens, to prepare a home and food before winter stays the work of the year. Yet another swarm may also issue; but enough has been said to show that it is by swarming alone, until man began to study bees and their habits, that the race has been prevented from becoming extinct. All this necessity for natural and unrestrained increase has now passed away. Man watches over the queen, and in his own way raises a successor to the throne. Every

effort ought to be made by sexual selection and careful management to perpetuate those stocks which show least desire to swarm, and are therefore, other things being equal, the most profitable workers for their owner. This is the great need. We must seek to raise a strain of bees which will, with careful management, devote themselves to labour, and leave the duty of race perpetuation to man.

The various races of bees are, no doubt, descended from a common stock. The influence of climate, selection, and the "survival of the fittest," together with such other influences as may have been at work from time to time, and which we are unable to comprehend, have produced the various strains of the original race. So again with man even; if we are slow to accept the theory that man himself is the descendant of an extinct species of anthropomorphous apes, we may well imagine that the present European is considerably more advanced in intelligence and power of using his different members than the earliest beings who inhabited the earth. We see a distinct step between the "age of stone" and the "age of iron." Why should there be a difference in the case of bees? In man the weaker race is continually giving place to the stronger, the savage dies out in the presence of the white man; the inferior races of bees will also, I believe, gradually, even if man gave no assistance, become extinct, and the stronger take possession. With this influence, then, continually at work man ought surely to be able to produce a bee possessing all the qualities which he desires. Again, in his endeavour to obtain a race of bees possessing the most desirable qualities only, man never seems until comparatively recent times to have considered that the influence of the drone is almost if not quite as great as that of the queen in producing bad and good qualities in succeeding generations. It is useless carefully to select queens and not pay the same attention to the drone. The queen is also thought by some to mate with the first drone she happens to meet on her nuptial flight, but is this probable? Why the beautiful form of queen and drone if their beauties were not to entrance and enthral the wooed and the suitor? Doubtless there is as much difference, even where the human eye can see none, between the personal appearance of one young queen and another as there is between one man and another. The queen and drone no doubt have and exercise a choice; whether the most playful drone, or the strongest on the wing, or one possessing some virtue unknown to us is the favoured suitor, we are unable to say, but just as a bird chooses its mate, either by reason of its entrancing song or gay plumage, so a queen bee, I believe, chooses from many thousand drones her mate. To rear a race of bees we must pay strict attention to the males; the drone must be reared in the best stock possessing those qualities in the greatest degree which we desire to perpetuate. By this selection of drones or queens, or by the haphazard mating of those drones and queens possessing certain qualities, the different species have arisen; by paying attention to this very point another species may yet be raised possessing still more useful qualities and less serious defects than any existing race of bees.

But it may be asked, Why do some bees desire to swarm so inordinately? Why do they endeavour to increase so often? May not the answer be given by alluding to a well known fact? If we have a stock of bees which is continually throwing off swarms and we breed from such a stock, the result is another stock having the same characteristics. Now, if this breeding from a stock thus continually throwing off swarms has been going on for generation after generation, what may we expect? A race of bees in which the desire of continual swarming is so firmly implanted that much trouble will be experienced in endeavouring to prevent, either by cross-breeding or other means, the issue of swarms. Again, a stock not given to increase may well be the ancestor of a race of bees the characteristic of which is a small increase and a great yield of honey. Now, if we can find such a stock as this last one, and attention is paid to the matter of breeding, we may hope to fix this characteristic of gathering honey rather than throwing off swarms. When such a race of bees has been found or reared, it will then be necessary for a bee-keeper in this country to consider whether—if the race has been reared abroad—it is suited to this climate; and if it is too tender, then care will again be required to acclimatise it in addition to keeping the strain pure and free from crosses with the common bee. Taking all these matters into consideration, I am of opinion that the practical bee-keeper working for profit should leave to those who have the time and patience the duty of rearing new races, and content himself with keeping a common race of approved merit and virtue. Even if an ordinary bee-keeper obtains a choice strain, it is hardly profitable to take the necessary means to keep it pure. When the "coming bee" has been found or reared we will then all adopt it, and until then the majority of us must rest content with taking such simple measures as lie in our power to aid in the extermination of the inferior and the increase of superior races, trust-

ing to those who are better able and equally willing to employ such means as they possess to benefit the apicultural world by introducing a bee such as we have endeavoured roughly to describe. It is the duty of every bee-keeper to destroy all inferior queens, so that in the succeeding year both drones and queens may be of a higher standard, and a better chance be consequently afforded to those earnest men who are striving so eagerly to improve our bees.—FELIX.

THE HONEY MARKET.

PRESSURE of work has prevented my answering "A. L. B." in your impression of January 13th, and I have been so busy with Chrysanthemums and babies that I have had little or no time to spare for bees. I am perfectly aware that no arguments that can be adduced or facts proved will convince him, "Felix," or others that the British Honey Company is a success, and will continue to be so. Knowing my fellow countrymen, the Scotch (and as my forbears have been Scotch and burghesses of Glasgow back to the time of good Queen Bess, perhaps it is not too presumptuous on my part to assume that I am Scotch) I know this, that the old adage holds true of Scotchmen much more than of any other race; but I appeal from "Felix" (and Co.) unto Cæsar. Enclosed is a copy of the balance sheet, which I will be much obliged if you will forward to him.

Roughly speaking, we made a loss of £500, which was due to the expenses of starting the company; while on the trading account we made a gross profit of £100 on a turn-over of £700, and during 1885 we bought upwards of £1000 worth of honey. The directors received no fees, as they are only paid out of profits. In a former number of the Journal the question was asked whether I personally was satisfied with the number of shareholders, only 6000 shares having been subscribed for.

Everything goes by comparison, and comparing our applications with that of Guinness the result is ludicrous; but if, on the other hand, is considered the applications for the now defunct Bee and Fruit Farming Company there is no cause to complain. Let me remind your readers that this was praised to the skies by "Felix" and others, and perhaps they will be good enough to let them know to what extent they backed up their respective opinions. As far as I know, and I have it on the authority of one of the shareholders, the total number of shares allotted, including the directors' qualifying shares, to the public was between 300 and 400. Again, I would ask, Why did not the Bee-keepers' Union make a start? There has been no honest explanation of the reason. A casual reference to the fact by "Felix," and a pious opinion expressed by "A. L. B.," is all that the general public know of its premature death.

Was there so little vitality in the scheme that "A. L. B." and others were snuffed out, Keats like, by an article or two in the *Bee Journal*? or was it that the scheme was so radically wrong that no one outside the clique would join it? So far as the Honey Co. is concerned the results of last year's business are most encouraging. The monthly sales are steadily increasing; and in spite of the Canadian honey, and other honey, which is only honey in name, our brand is making its way, and grocers find that the public will not take other honey in place of it. I have tasted samples of Canadian, Australian, New Zealand, South African, American, and other genuine foreign honey, but with one exception, some Swiss honey, I have yet the pleasure to come of tasting any colonial or foreign sample that equals our British honey in delicacy of flavour and aroma.

A case in point may prove this better than a bare assertion. A friend purchased some Canadian honey—our cousins do not suffer from an excess of modesty—and gave it to his children. The first day it was punished pretty severely, but the next day it was not touched, and the British honey reigned supreme. There is no vice about it, sweetness is there, some flavour, and good colour, but there is a nameless something which marks its decided inferiority.

Whether with constant rage for cheapness the public will take to foreign honey is a problem which can only be solved by the experience of the next year or two. Though I have tasted colonial mutton and beef on many occasions, I have never been able to delude myself into the belief that I prefer it to prime Southdown or Scotch beef, even when I have been suffering from a severe attack of economy.

As pure foreign honey can be bought for 3d. per lb., it is still an open question whether we British bee-keepers can produce honey anywhere near this in price, and whether the public will pay an extra 1d. or 2d. for pure British honey.—GEO. WALKER, *Wimbledon*.

TRADE CATALOGUES RECEIVED.

S. Mortimer, Swiss Nursery, Rowledge, Farnham, Surrey.—*Illustrated Catalogue of Vegetable, Flower, and Farm Seeds, 1887.*

Viccars Collyer & Co., Leicester.—*General Catalogue, 1887.*

James Yates, 29, Little Underbank, Stockport.—*Descriptive Catalogue of Vegetable and Flower Seeds.*

R. H. Poynter, Castle Green, Taunton.—*Catalogue of Seeds.*

John Jardine, jun., Portland Gardens, Mill Road, Kilmarnock.—*Catalogue of Prize Plants and Seeds, 1887.*

T. S. Ware, Tottenham.—*Illustrated Catalogues of Hardy Perennials, Pæonies, Hardy Climbing Plants, Chrysanthemums, and Hardy Florists' Flowers.*

Boulton and Paul, Rose Lane Works, Norwich.—*Price List of Horticultural Buildings and Boilers.*



•• All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

TO CONTRIBUTORS.—Our friends who favour with communications on controversial subjects will oblige by sending their articles as soon after they receive the Journal as possible. Our space is practically filled on Monday, and only articles that are "expected," and which arrive on Tuesday, can, as a rule, be inserted in the current issue.

Books (*Rosshire Amateur*).—The work you name is not now published. (*R. L.*)—The "Cottage Gardeners' Dictionary" will be of great service to you as a work of reference.

Regal Pelargoniums (*Inquisitive*).—The "best" of anything is a question of taste. The following are good:—Dr. Masters, Duchess of Bedford, Duchess of Albany, Queen Victoria, Captain Raikes, Prince of Teck, Princess of Wales, Madame Thibaut, Mr. John Hayes, Miss Lily Cannell, Volonté Nationale, and Edward Perkins.

Paint for Hot-water Pipes (*Paint*).—Much of the rust can be brushed or rubbed off when the pipes are quite dry. There is no better or safer paint than mixing lampblack with linseed oil to the requisite consistency, only heating the pipes gently for drying. If one covering does not suffice give a second when the first is dry.

Grapes for Succession (*Ferndale*).—Your conditions exclude the Black Hamburgh and some other varieties. As coming within the scope of your inquiry we name Madresfield Court, Muscat of Alexandria, West's St. Peter's, Mrs. Pearson, Mrs. Pince, and Lady Downes.

Rhododendrons (*W. P. W.*).—If limestone is employed on the roads in your district, we should not apply the scrapings to the land intended to be planted with Rhododendrons; but gritty matter not containing lime would improve the soil considerably. As to "ponticum" being the best for your purpose, that depends on what your "purpose" is. You gave us to understand you desired to grow named varieties, that indicating your preference for handsome trusses of flowers in great variety of colour. If all you wish is merely a mass of evergreens and little variety of colour, then the common ponticum will answer, but they do not approach in beauty the named caucasicum hybrids, which would be quite hardy in your district. As to the size of the plants, that is entirely a question of cost, those 2 feet in diameter being necessarily more costly than others half that size. As to distance of planting, that, too, is a question of cost. If you wish an effective mass at first, you must plant closely. We have seen small plants 9 inches to a foot in diameter, inserted 4 feet apart, then in a few years, after they nearly touched, every alternate shrub was removed and the plantation extended. No shrubs transplant better than these do in a large state.

Useful Apples (*Idem*).—The following are good for home use and market:—Dessert: Mr. Gladstone, Irish Peach, Devonshire Quarrenden, Worcester Pearmain, King of the Pippins, Cox's Orange Pippin, Margil, Claygate Pearmain, Court Pendu Plat, and Wyken Pippin. Culinary: Lord Suffield, Duchess of Oldenburgh, Ecklinville, Pessgood's Nonesuch, Lane's Prince Albert, Lord Derby, Winter Hawthornden, Warner's King, and Blenheim Pippin, the second and last named being good also for dessert. Your omission to name the varieties you have is the reason we name more than you ask for.

Mealy Bug on Vines (*Homo*).—We regret exceedingly the invasion of your Vines by the mealy bug and the results of your endeavours to subdue it. We have had to deal with Vines and their enemies for forty years, and know something of the nature and habits of the insect in question, and of the difficulty of banishing it from vineries; and we are as confident as we can be of anything, that had your Vines been in our charge, the advance columns of the enemy would have been seen and steps promptly taken to prevent their rapid increase. Notwithstanding all you say we are obliged to conclude the enemy stole a march on you and your sharp-eyed gardeners. We know the Tomato midge very well, and that it can be destroyed by repeated fumigation, but the mealy bug cannot. Since you failed to obtain the name of the midge from the authority to whom you allude we may inform you it is *Aleyrodes vaporariorum*. As the application of tar and clay to Vines pass your comprehension, we will cite from an article that was published in our columns in 1884, showing how one of the best Grape growers in Britain applied it and cleaned his Vines; and it so happens that one of his bunches of Grapes grown after the dressing is figured on another page. Relative to cleansing and tarring Vines Mr. Murray, who banished the mealy bug from his vineries, observed:—"I pity anyone who has charge of Vines infested with mealy bug, for it was truly said by one of

our leading gardeners a few years ago 'Those who have a mealy bug on their Vines may consider it as bad as the phylloxera.' I consider it much worse, for in the case of mealy bug the gardener year after year battles with his grievance, giving the Vines their yearly dressing, thinking it will be the last required for eradicating the pest; but when the thinning time comes round he finds to his horror that he has been disappointed. Our plan is to commence cleaning the middle house, taking all bedding plants out, if any, and leaving nothing but the Vines to be dealt with; then cover all the border to the depth of 9 inches with long litter from the stables—this saves the soil from being trampled on too much, and catches all insects that may be washed off the Vines or the house. The Vines are next taken down, pruned, and laid along the front of the house; all the loose whitewash is then scraped off the back wall, and nothing is speedier for this work than a Dutch hoe. When the wall is finished and all the dirt settled we give the house a thorough washing down with the water engine, mixing the water with paraffin oil, a little stronger than it is generally recommended. During the time that the engine is going we cover the Vines with mats; we then wash the Vines with soap and water before taking off any of the bark—this damps the webs that surround the bug, and prevents it blowing about and settling on any part of the house that has been cleaned. After the Vines have been washed, and before they are dry, any loose bark can be taken off and the rods again washed with soap and water; they are then ready for the effectual cure. To a mixture of clay and water about the thickness of cream one-third of coal tar is added, stirring till properly mixed, and one man keeps stirring the mixture during the time that another is painting the Vines rods. An ordinary painter's brush is used, and instead of keeping the mixture off the eyes of the Vines, as lately advised, rub it well in. When the Vines are completed the woodwork of theinery will be dry. This and the wires are then painted. We prefer to do this inside painting ourselves, taking care to fill up every crevice with pure paraffin, then with putty. When the painting is finished the Vines are tied in their places, the long litter is removed, and any loose soil on the border as well; but if the soil is very dry we sprinkle it with water to keep down the dust. Then for a finish the back wall is whitewashed, the hot-water pipes painted, and the border top-dressed. Anyone who has to deal with mealy bug on Vines is advised to give the above plan a trial." Several gardeners have tried the plan, and, well carried out, it has proved satisfactory.

Names of Fruits.—The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and surplus fruits beyond that number cannot be preserved. (*Hants*).—1, Doyenné d'Alençon. 2, Jaminette. 3, Besi de Quessoy.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (*G. R. J.*).—The orange-coloured fruit is that of *Physalis Alkekengi*; the climbing plant is *Boussingaultia baselloides*, a native of South America, half-hardy in this country, and requires the protection of a greenhouse in winter.

Transferring Bees (W. H. W.).—You "can" transfer your bees on any warm day in April. We do not "advise" you to do so, but if you have determined to transfer them we can only tell you how it may most easily be done. The bees must all be driven out of the hive into an empty skep, which must be placed on the stand upon which the stock has stood. The skep, the combs of which it is intended to transfer, may be cut in two transversely between the two centre combs. The combs may now easily be cut out and must be fitted into the frames. When a frame is filled with comb three pieces of tape should be passed round the frame at requisite distances to retain the comb in position. These tapes must be removed after an interval of two days. If some frames cannot be fitted to the bottom a false bottom rail must be inserted to hold the combs together. No drone comb should be transferred. After all the frames are placed in position the bees may be thrown on to a sheet in front of the hive and will quickly re-enter their new home, the hive to stand where the skep stood before the operation. A far preferable plan would be to allow each stock to swarm, or to take an artificial swarm therefrom, to have these swarms, if strong ones, in separate hives; if small ones, then together in one hive. Allow a cast to issue from each stock; place these casts again in separate hives, and place these hives close to the old stocks from which the casts have respectively issued. About twenty-two days after the issue of the first swarm from each hive proceed to transfer the combs—if they are worth the trouble—in the manner pointed out, and give the combs so taken from each stock to the "cast" places by its side, uniting the bees also according to the method pointed out many times in this Journal. You will then have either three hives, or, if the swarms are strong, four. In the other method the stocks would, unless you have more than ordinary skill and knowledge, quite possibly be entirely ruined, and be profitless all this season. A "Woodbury hive" contains ten frames, 13 by 7½ inches (inside measurement), with projections of five-eighths of an inch, which rest in a rabbit a little below the surface of the hive, leaving a space of three-eighths of an inch between the top of the frames and the crownboard. These frames are 1 inch wide, and are kept half an inch apart; three-eighths bee space is left between the sides and bottom of the hive and sides and bottom of the frames. The inside measurement of the hive is 14½ inches square and 9 inches deep. This hive also generally has a "window" at the back. This is a description of the original "Woodbury;" there is another made of straw instead of "wood." We have endeavoured to answer your question fully, but cannot enter into further detail at present, although there are several alternative methods to the one here given; however, the whole question will be discussed as fully as possible in the course of the papers on "Practical Bee-keeping," and you will then have an opportunity of judging for yourself on the advisability of adopting one or other of the plans so described.

COVENT GARDEN MARKET.—FEBRUARY 16TH.

MARKET quiet. Grapes making better prices, as also good samples of home grown Apples.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.		
Apples ½ sieve	2	0	to	5	0	Melon each	0	0	to	0	0
" Nova Scotia and						Oranges 100	6	0	to	12	0
Canada, per barrel	10	0		13	0	Peaches per doz.	0	0	to	0	0
Cherries ½ sieve	0	0		0	0	Pears dozen	1	0	to	2	0
Cobs 100 lb.	60	0		70	0	Pine Apples English .. lb.	1	6	to	2	0
Figs dozen	0	0		0	0	Plums ½ sieve	1	0	to	2	0
Grapes lb.	1	0		3	6	St. Michael Pines .. each	2	0	to	5	0
Lemons case	10	0		15	0	Strawberries per lb.	0	0	to	0	0

VEGETABLES.

		s. d.	s. d.			s. d.	s. d.
Artichokes	dozen	1 0	to 0 0	Lettuce	dozen	1 0	to 1 6
Asparagus	bundle	0 0	0 0	Mushrooms	punnet	0 6	to 1 0
Beans, Kidney	per lb	6 6	1 0	Mustard and Cress	punnet	0 2	0 0
Beet, Red	dozen	1 0	2 0	Onions	bunch	0 3	0 0
Broccoli	bundle	0 0	0 0	Parsley	dozen bunches	2 0	3 0
Brussels Sprouts ..	½ sieve	2 0	2 6	Paranips	dozen	1 0	2 0
Cabbage	dozen	1 6	0 0	Potatoes	cwt.	4 0	5 6
Capiscums	100	1 6	2 0	„ Kidney	cwt.	4 0	5 0
Carrots	bunch	0 4	0 0	Rhubarb	bundle	0 2	0 0
Cauliflowers	dozen	3 0	4 0	Salsify	bundle	1 0	1 0
Celery	bundle	1 6	2 0	Scorionera	bundle	1 6	0 0
Coleworts	doz. bunches	2 0	4 0	Seakale	per basket	1 6	2 0
Cucumbers	each	0 8	0 4	Sballots	lb.	0 3	0 6
Endive	dozen	1 0	2 0	Spinach	bushel	3 0	4 0
Herbs	bunch	0 2	0 0	Tomatoes	lb.	0 6	1 0
Leeks	bunch	0 8	0 4	Turnips	bunch	0 4	0 6

CUT FLOWERS.

		s. d.	s. d.			s. d.	s. d.		
Abutilons ..	12 bunches	2	0 to 4	0	Lily of the Valley, 12 sprays	0	9 to 1		
Arum Lilies ..	12 blooms	4	0	6	Marguerites ..	12 bunches	2	0 to 6	
Azalea ..	12 sprays	0	6	1	0	Mignonette ..	12 bunches	4	0 to 6
Bouvardias ..	per bunch	0	6	1	0	Narciss. Paper-white bunch	0	4	0 to 6
Camellias ..	12 blooms	2	0	4	0	„ White English, bunch	1	3	1 to 6
Carnations ..	12 blooms	1	0	8	0	Pelargoniums, per 12 trusses	0	9	1 to 0
„ ..	12 bunches	0	0	0	0	„ .. scarlet, 12 trusses	0	6	1 to 6
Chrysanthemums	12 bches.	0	0	0	0	Roses ..	12 bunches	0	0 to 0
„ ..	12 blooms	0	0	0	0	„ (indoor), per dozen	1	0	2 to 6
Cornflower ..	12 bunches	0	0	0	0	„ Tea dozen	2	0	4 to 9
Cyclamen ..	12 blooms	0	4	0	9	„ .. red (French) dozen	2	6	3 to 6
Dahlias ..	12 bunches	0	0	0	0	Parma Violets (French)	6	6	7 to 0
Epiphyllum ..	doz. blooms	0	6	0	0	Poinsettia ..	12 blooms	4	0 to 6
Eucharis ..	per dozen	4	0	6	0	Primula (single) per bunch	0	4	0 to 6
Gardenias ..	12 blooms	12	0	24	0	„ (double) per bunch	1	0	1 to 6
Hyacinths, Roman, 12 sprays	1	0	1	6	0	Stocks, various 12 bunches	0	0	0 to 0
„ ..	12 sprays	4	0	6	0	Tropaeolum ..	12 bunches	1	6 to 2
Lapageria, white, 12 blooms	2	0	4	0	0	Tuberose ..	12 blooms	2	0 to 4
Lapageria, red ..	12 blooms	1	0	2	0	Tulips doz. blooms	0	9	1 to 0
„ longiflorum, 12 blms.	0	0	0	0	0	Violets 12 bunches	1	6	2 to 6
Lilac (white), French, bunch	6	0	8	0	0	„ Czar, French, per bunch	2	0	2 to 6

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Aralia Sieboldi ..	dozen	9	0	to 18	0	Ferns, in variety ..	dozen	4	0	18	0
Arbor vite (golden)	dozen	6	0	9	0	Ficus elastica ..	each	1	6	to 7	0
" (common)	dozen	6	0	12	0	Foliage Plants, var.	each	2	0	10	0
Azalea	per dozen	24	0	36	0	Hyacinths ..	per dozen	6	9	9	0
Begonias	dozen	4	0	9	0	Lilies Valley	dozen	18	0	24	0
Cineraria ..	per dozen	9	0	12	0	Marguerite Daisy ..	dozen	6	0	12	0
Cyclamen	dozen	12	0	24	0	Myrtles	dozen	6	0	12	0
Dracæa terminalis,	dozen	30	0	60	0	Narciss (various) ..	dozen	12	0	15	0
" viridis ..	dozen	13	0	24	0	Palms, in var. ..	each	2	6	21	0
Erica, various ..	dozen	9	0	12	0	Primula sisensis ..	per doz.	4	0	6	0
Eunonymus, in var.	dozen	6	0	18	0	Solanums	per doz.	9	0	12	0
Evergreens, in var.	dozen	6	0	24	0	Tulips	per doz. pots	6	0	9	0



MANURE FOR PASTURE.

THAT the ordinary farmer is practically ignorant of the management of pasture has been repeatedly insisted upon by us when we have been calling attention to our own practice and its results. We have done this at the risk of being accused of egotism, for it is a matter of such high importance, and which has been so much neglected, as to call for clear statements and forcible treatment at our hands. We had, and still have, a fair right to a hearing, for we came to our readers with no mere theory, no fanciful conjecture of what was possible, but with a statement of results, and full details of the practice which had led to them.

One of the most important points—perhaps the most important in the cultivation of pasture—is the application

of manure. That which we have used with invariable success for different kinds of soil for grass land per acre is half a hundredweight nitrate of potash, three-quarter hundredweight of nitrate of soda, half a hundredweight of superphosphate, and half a hundredweight of steamed boneflour. These chemical manures are procured separately from a reliable source, and mixed under careful supervision at the farm upon which they are to be used. Experience has shown that the end of February is the best time to apply the mixture, for then we are confident of enough rain falling to dissolve or wash the manures into the soil. If we wait a month longer we are by no means so sure of this, and it was a want of the proverbial April showers for two consecutive years that induced us to use the manure in February. It may nevertheless answer well enough in the west and south-west, or in the moist climate of Ireland to wait till April, but that is a matter easy of comprehension. It is quite patent that without rain soon after applying chemical manures to grass the results must prove unsatisfactory.

We wish to call particular attention to the importance of using a judicious mixture, wherein are blended in just proportion those manurial constituents with which it is necessary that the soil should be charged, in order to ensure a rich growth of herbage throughout the season. Nicety of calculation as to the exact quantity of each manure which should be used is certainly desirable, but we cannot ask a farmer to await the result of experiments extending over two or three years before using any mixture for his particular farm. Our mixture was selected with much care by Professor Jamieson, and we have found it answer so well that we have no hesitation in asking our readers to use it, and by using more or less of nitrogen and potash upon different parts of a farm, sufficient experience would soon be gained to enable them to decide with safety upon any alteration in the quantities given. We may say here that in our own experiments we have used twice the quantity of each kind of manure per acre, the result being a crop of more than twice the bulk of that following an ordinary dressing. So that we regard the formula given as both moderate and safe for ordinary uses.

If proof were required of the general defects in the management of pasture we could point to the experiments carried out last year by Mr. Martin J. Sutton in Oxfordshire. Six fields were selected upon a farm of thin, gravelly, light soil, each field being divided into six plots. One plot in each field had no manure; the second plot had a dressing of sulphate of ammonia at the rate of a cwt. per acre; the third $1\frac{1}{2}$ cwt. of nitrate of soda; the fourth 3 cwt. of superphosphate of lime and 2 cwt. of kainit; the fifth 1 cwt. sulphate of ammonia and 2 cwt. of kainit; and the sixth 3 cwt. superphosphate of lime, 1 cwt. nitrate of soda, and 2 cwt. of kainit per acre. We have thus two plots dressed with nitrogenous manures, one with mineral manures, and two with a combination of mineral and nitrogenous manures in varying proportions. Upon an old pasture, and another four years old, both the sixth plots gave the best results; but in layers with Rye grass nitrate of soda answered best, as was to be expected.

So far as these experiments go they are useful, but they do not go far enough. We require in chemical manure for pasture a mixture of nitrogen, potash, and phosphoric acid suitable for the promotion of a free robust growth in Clovers as well as grasses. It must, moreover, be so blended as to provide food for something more than the mere growth of a season. To secure such growth is un-

doubtedly our primary object, but we must also strive to sustain a store of fertility in the soil till the next season's application of manure. This is precisely what we have found Professor Jamieson's mixture to do. It does more than this, for an annual application leads to a gradual but marked improvement in pasture, so that not only do we get a full crop of hay, but also an abundant aftermath, and such well sustained vigour during winter that an early growth of wonderful luxuriance in spring is visible long before there is any perceptible growth upon poor neglected pasture.

WORK ON THE HOME FARM.

Heavy accounts for oilcake are among the things which tend to cripple the efforts of a farmer to make both ends meet in these hard times. Often have we expounded our views upon the importance of growing food for cattle upon the farm itself, so far as it is possible to do so. We certainly exemplify this advice in our own practice, and so far this course has proved materially to our advantage. The ewe flocks have no cake, only crushed Oats. The other sheep fattening in folds and yards have crushed Oats mixed with beanmeal and chaff. Beanmeal is most nutritious food, and we have now remarkable proof of this in the condition of some bullocks which have been fattened with beanmeal, chaff, and pulped roots. The highest price offered us for Beans was 31s. per quarter, and we decided to use most of them rather than sell at so low a price, for the Beans weighed from 500 lbs. to 540 lbs. per quarter. The result proves that we did right. By way of experiment we are feeding some bullocks at another farm with crushed Oats, maizemeal, pulped roots, and chaff. We buy the Maize at 21s. 3d. per quarter, and certainly we expect at least equally good results from it. Beans would cost us 32s. per quarter, and therefore, as we have to buy some food for the animals upon one of our farms, we prefer the Maize, not only because it is cheaper, but also because in fat and flesh-forming properties it is a little superior to Beans. We know a clever farmer, an excellent manager of live stock, who uses very successfully a mixture of crushed corn, Oats, and Barley, with some maizemeal and linseed-meal, which makes a nutritious and very fattening mixture.

We have sown Peas during the past week, and have kept as many ploughs at work as possible, so as to have the soil in readiness for the spring corn. There is excellent promise of a fine seed bed and early sowing for all spring crops, the long frost having pulverised the soil, and a strong north-east wind at the time of writing this note is also doing much good. This wind will also materially improve the condition of Wheat still in stacks, and well would it have been had much Wheat threshed during the frost been left in the stacks till the present time. To thresh corn when the grain is liable to be hurtfully affected by the moist condition of the atmosphere is bad practice, often involving a serious loss.

DAIRY FARMING.—Will some of your readers give me their experience of dairy farming and the prospect for a young man to make a living by it? How should he learn, and how long it would take? Then the best place, and how should he set up for himself? and what is the smallest capital he could start with? and when is the best time to make a beginning? Any information will be most gratefully received.—CHAMPION.

OUR LETTER BOX.

Agricultural Salt (Cropper).—If you write to Messrs. John Corbett and Co., the Salt Works, Droitwich, we think you will succeed in obtaining all the information you require.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. $51^{\circ} 32' 40''$ N.; Long. $0^{\circ} 8' 0''$ W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				
	Baromet- er at 39 $\frac{1}{2}$ and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		Rain.
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1887.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
February.										
Sunday	30.683	35.2	34.1	N. W.	41.9	48.0	34.0	62.2	26.4	—
Monday	30.747	32.2	32.2	S. E.	59.8	41.6	32.1	50.6	26.1	—
Tuesday	30.744	29.9	29.1	N. E.	38.8	38.8	26.4	63.2	24.8	—
Wednesday ..	30.711	33.3	31.4	E.	37.6	37.1	28.8	60.9	25.1	—
Thursday	30.529	30.4	28.6	N. E.	36.8	35.8	27.6	70.9	24.2	—
Friday	30.867	33.9	32.2	N. E.	36.3	33.9	30.2	45.1	26.6	—
Saturday	30.464	35.7	34.2	N.	35.2	45.4	33.1	76.6	29.2	—
	30.606	33.1	31.7	—	23.2	40.8	30.3	62.1	25.9	—

REMARKS.

6th.—A lovely spring day,
7th.—Fog in morning; fine later, with some bright sunshine in afternoon.
8th.—Generally dull, but a little sunshine in afternoon.
9th.—Fine, with some sunshine.
10th.—Fine morning; bright sunny afternoon.
11th.—Fair, but without bright sunshine.
12th.—Fine, bright, and rather windy; brilliant evening.
A rainless week, with cold easterly winds and a moderate amount of sunshine. Temperature about 10° below that of the preceding week, and 3° below the average. Pressure remarkably high.—G. J. SYMONS.



COMING EVENTS

24	TH	Royal Society at 4.30 P.M.
25	F	Quekett Club at 8 P.M.
26	S	Royal Botanic Society at 3.45 P.M.
27	SUN	1ST SUNDAY IN LENT.
28	M	
1	TU	
2	W	Society of Arts at 8 P.M.

POTTING AND WATERING CATTLEYAS.

THESE are two very important items connected with the successful culture of these plants. Houses may be of the best description, shading and ventilating properly attended to, but unless potting and watering the plants are carried out in a judicious manner the other treatment, however good it may be, will not lead to success.

It is an open question which is the best time to carry out the operation of potting. It is generally considered that the plants should be active at their roots before it is done; but this is by no means important, for we tested the matter some years ago, and now repot the whole of our plants that need it before they start into growth. This we consider preferable, for the work can be accomplished with less injury to the roots, which are very brittle after they have commenced extension. Another objection to repotting them after they are growing is the great danger of checking the plants by the removal of the compost. The best time to repot them is before growth has commenced, just as they have completed their period of rest, as any check at that time will only be slight.

Disturbing the roots of Cattleyas too often is a mistake, and when they are repotted a shift should be given sufficiently large to last them until the compost used needs renewal. They are well worthy of the best peat that can be obtained, and even from this the soil particles should be removed and only the fibre employed. Inferior peat with the small particles left in the compost becomes "pasty," a condition Cattleyas cannot endure, and they then need disturbing very frequently. Good peat fibre watered as will be described will last three if not four years. We have just been repotting some plants that were imported two years ago. They were potted after they started into growth, and the fibre is still sweet and will last for another two years. In this case a shift to last for that period only is given. The pots or pans in which they are growing must always be broken, for the roots cling tenaciously to the sides, and it is impossible to turn them out without destroying a large number. We prefer pans for these plants to pots, of a perfectly plain make with three or four holes in the base; none at the sides, for they become green and have an unsightly appearance.

When the pans are broken any portions to which the roots cling should not be pulled off, but the old soil carefully picked out. It must then be determined how much drainage shall be placed in the new pans. We invariably invert one or more whole pots according to the size of the pan, and then arrange the plant with the portions of the

old pan attached, filling in about the roots with clean crocks of various sizes until the pan is half or three parts full, as each individual case may demand. It is very difficult to lay down any hard-and-fast rule in this matter, for with established plants scarcely any two can be done exactly alike. Some plants will not have rooted down into the drainage, and in this case the pans may be three parts filled with crocks before placing the plant into position. It is much easier to drain the pans neatly and satisfactorily for those that have not rooted deeply than for those that have, but a little practice only is needed to do the work well in each case. When large portions of the old pan cling to the roots, and large pieces of broken pots are arranged amongst them, two or three smaller sizes should be at hand for dropping in amongst the larger pieces. In each case, for the surface of the drainage a layer of crocks broken moderately small, such as would remain in a half-inch mesh sieve, but pass through one with three-quarters of an inch mesh, should be placed on the surface. Over this a layer of peat fibre with not a trace of fine soil in it; moss may be used, but fibre is best, for the moss decomposes too quickly. The remaining space may be filled with peat fibre and charcoal, used in good sized lumps, with a few moderately small crocks scattered in as the work of filling proceeds. Take every care to press the compost as firmly as possible without breaking the roots.

Some incorporate living sphagnum moss amongst the compost, but we have discontinued the practice. The object should be to place nothing in the pans that will decompose rapidly, for Cattleyas, of all Orchids, are very impatient of sour material about their roots; in fact, they will not long remain healthy if care is not taken in this matter. If sphagnum is employed it should be arranged on the surface, so that it can be picked out annually without disturbing the roots, and fresh supplied just after the plants have started into growth.

In potting imported plants for the first time they must not have too large pans or pots. These should be filled within an inch of the surface, when the plant may be arranged into its proper position. In many instances it is necessary to place a stout stake in the centre, by which the plant can be firmly secured in its place. When this is necessary the stake should be placed in before the drainage, so that the latter will keep it perfectly steady. When the plant is in position the remaining portion of the pot may be filled with broken pots until the plant commences rooting and growing, when a portion can be removed and peat fibre supplied, with a little moss on the surface. The peat may be added at first if careful watering is practised. We have tried both ways and have found no appreciable difference in the results, and therefore use a little peat when first potting them to save the trouble of examining the plants a second time.

Cattleyas succeed remarkably well in baskets suspended from the roof, but particular care is needed when they are first placed in them. If the peat fibre is very deep in the baskets or well into the centre, supplying them with fresh compost is not an easy matter. After they become a mass of roots it is very difficult to get the old soil out. The baskets should be nearly filled at the commencement with good sized pieces of crocks and charcoal in lumps, the peat being only used near the surface and sides of the basket; moss is best for the latter position. Under these circumstances the whole can be removed; any that cannot be picked out with the fingers

can be broken with a pointed stick and then washed out with tepid water. Before replacing the compost, however, the plants must be allowed to drain well, so that the charcoal and roots become dry. When plants need larger baskets do not attempt to remove them from those they are growing in, but the basket should be dropped into the new one and the space between the two filled with charcoal and crocks, using peat fibre and moss near the surface, and the latter round the sides of the baskets to assist in retaining moisture during the growing season about the roots of the plants. After the old compost is removed rebasketing these plants is an easy process.

Cattleyas require very careful watering if they are to be kept in a luxuriant condition. Too frequently they receive too much water, with the result that the stems and foliage present a sickly appearance. The quantity of water during the resting or growing period depends upon the temperature the plants are grown in. If they are grown under cool airy conditions during the winter less water is required than when the plants are given warmer treatment. During the summer those subjected to liberal ventilation will require more water than those grown under a closer system of treatment. Under whatever conditions they may be grown as regards temperature, shading, and ventilation, no more water should be given than is sufficient to keep the pseudo-bulbs fresh and plump. This must be strictly adhered to from the time growth is completed until they display signs of activity during the months of February and March. From that period the supply should be gradually increased as root and bulb growth extends until the time of greatest activity has been reached, when liberal supplies should be given until the pseudo-bulbs are firm, when the supply again should be gradually decreased. During active growth they must not be saturated, neither must the compost about their roots ever be allowed to become dry. When they are watered a thorough soaking should be given, and the plants left until they nearly approach a dry state, when the operation should at once be repeated. The system of syringing them heavily once or twice a day cannot be too strongly condemned, for this system keeps the compost in a state of saturation; in fact, they become too wet by this method, and the fibre of the compost is decayed much quicker than would otherwise be the case. Injudicious watering soon renders the compost sour, and the roots of the plants decay to a sufficient extent to render their appearance anything but satisfactory. Take two plants, and keep one on what I may term the dry system, and subject the other to the opposite extreme, and it will be found that the general appearance of the first will be decidedly the more satisfactory. It will not only possess larger pseudo-bulbs and foliage of a darker green, but the roots will be thoroughly healthy, while those of the other will be in a state of decay. Cattleyas require less water than the majority of Orchids, and only for a very limited time during their most active stage should what we may term liberal supplies be given them.

I am no advocate for baking the plants as practised by some cultivators, but prefer to keep a moderate amount of moisture in the atmosphere during the season of inactivity, and thoroughly moist during the most active period of their growth.—A NORTHERNER.

SOME GOOD VEGETABLES.

SOMEWHAT late in the day I proceed to give my experience in 1886 of a few novelties and of other older varieties of vegetables

with selections, trusting that my experience may be of some little use to your readers. Owing to my leaving my late residence in September I was not fully able to see some of my Brussels Sprouts at their best, for they were rather backward. Taking everything into consideration I had fewer disappointments in my novelties than I might have expected, and although the season was a very unfavourable one to me at a critical period I had a good opportunity to form a fair opinion of the qualities of my various produce.

In Broad Beans I grew Suttons' Mammoth, Daniels' Norfolk Giant, and John Harrison; the last is the best cropper and of highest quality. Of runner Beans I only grew Girtford Giant, which produced long fleshy pods, brittle as glass and very straight. The quality is all that could be wished, and it is excellent for exhibition. I found Ne Plus Ultra Dwarf Bean an immense bearer of long tender Beans which stood the test of the pot. The Monster Negro was in every way satisfactory, and I prefer it to the Canadian Wonder. It is very prolific indeed, and the two varieties mentioned will keep up an excellent succession.

Brussels Sprouts:—Daniels' Colossal, Webb's Matchless, Gilbert's Burghley were all excellent, the last growing very tall indeed with good compact sprouts. Matchless have not so large knobs, but they are very hard and weigh well, neat in appearance, and splendid quality. A Chou de Burghley Brussels Sprout which I believe Mr. Gilbert has dubbed Chou de Realité, I cut very good heads from. It is very dwarf with side sprouts, but the heads form a firm miniature Cabbage possessing the flavour of the famous Chou and the Brussels combined, very sweet and entirely free from the objectionably strong taste so often found in the Brussels. Of Savoy Cabbages Gilbert's Universal is far and away the best. It is a neat little beauty, which comes in quickly and lasts long. I cut some in September, and brought some here which I am cutting now. It is as sweet as a nut, and when boiled you are not driven out of the house by the stench as you are by some of the Savoy. It is a great acquisition. Dean's Snowball Cauliflower is very early, forming small but very white heads in about fifteen weeks from sowing. Suttons' New Red Intermediate Carrot cannot be bettered, for it is handsome in appearance, and altogether the best selection I have ever grown. Lyon Leek is a monster, and no doubt will be in favour with exhibitors.

In Mr. Iggulden's Marston Park Green-flesh, Lunefield Hybrid Scarlet, and Mr. Abbey's W. Iggulden Green-flesh, I found three Melons not easily to be surpassed. The last I was much taken with, for the constitution was excellent, the fruit large and beautifully netted, and the flavour very fine indeed. The Scarlet-flesh was the best I have tasted of the colour, but I am afraid I am prejudiced in favour of green-flesh. It has very neat oval fruits, whilst Marston Park is round and only second to W. Iggulden.

Suttons' Golden Globe Onion is a very good one, but I prefer Cranston's Excelsior, which is very handsome, weighty, and a good keeper. Early Kenilworth, William the Conqueror, Satisfaction, Duke of Albany, Duke of Connaught, Triumph, and several other Peas were tried. As a first early Early Kenilworth will take a forward place, for it is a good cropper of excellent quality, whilst the Conqueror follows in a week later. They are very similar, and both are round blue Peas. Satisfaction is a real beauty; I never tasted a Pea I liked so much, for it is sweet as sugar, and melts in your mouth, whilst the Peas are truly immense. No one should fail to try this Pea, and I have no doubt those who do will derive "satisfaction." Duke of Albany is excellent for the show table, is also a very great bearer and of good flavour. Duke of Connaught is very sweet, but I was not satisfied with it, but it was not well situated, and I will not condemn it. Triumph (Sharpe) is good in all respects, and will no doubt be had in esteem by market growers, for it is an immense bearer, and 3 feet high. Early Milan Turnip is the earliest, fine in appearance, and good in quality if used quickly.

Suttons' Seedling Potato is handsome, a good cropper, and splendid on the dinner table. I say to all, Try it. Village Blacksmith is a peculiar russetted Potato, but is very floury. I have not fairly tried it, but I am pleased with it so far. Sharpe's Victor is the very best first early Potato anyone can grow, excellent for frames, good cropper, of fine quality; and Duke of Albany, which is a white Beauty of Hebron, is an excellent follow on. With Reading Russet and Vicar of Laleham for a later crop and for exhibition it would be very hard indeed to pick out six better Potatoes.—H. S. EASTY.

P.S.—Since writing the above I find that while I was writing my remarks you were printing Mr. Iggulden's. He has taken "the wind out of my sails," but I am glad to see his opinion of many varieties agrees with mine, and he has not touched on all my subjects. I must chance it, and send in the above so that the editor can print or consign it to the waste paper basket as he thinks proper.

[The decision is quickly formed—to "print." Notes founded on experience are acceptable to us, because useful to our readers, and we thank Mr. Easty for his contributions.]

ROSE-GROWING FOR BEGINNERS.

(Continued from page 105.)

VARIETIES TO GROW.

I HARDLY know what to say here, many of my friends differing from me so much on this subject, but nothing I have heard yet has shaken me in the opinion I formed long ago, and to which I shall continue to adhere. That opinion is not to have too many varieties. "Over a thousand varieties to select from," says some nurseryman's catalogue. "Seven or eight hundred too many," say I. What do you want, reader, is it a whole lot of jaw-breaking names? I do wish Messieurs the French raisers would be content with one name for each Rose, or at least abbreviate some of them. What have we done that we should be crushed beneath the weight of such a collection of syllables as Louis Philippe d'Orleans, or Fiançailles de la Princesse Stephanie, while such short and convenient names as John Smith, or Brown, or Jones, and hundreds of others go a-begging? Is it a collection of names you wish for, half or three-quarters of the Roses corresponding to which will do no good, and are not worth the name labels expended on them? Our catalogues are, to my thinking, very defective, and will be, until there is a mark inserted against each variety signifying about how many blooms may be expected in one season from one tree; or rather, in many cases, how many years one would have to wait for a bloom. As it is, the catalogues are most misleading to a beginner. Take one instance—Pierre Notting is described by a leading nurseryman as, "blackish red shaded with violet, very large and full, form globular, one of the best dark Roses." Perfectly true, and during the last ten years I daresay I may have seen in my garden, containing considerably over a dozen plants of this variety, at least two blooms, glorious ones, fully bearing out all that is said here in its praise, but "as a useful Rose for cutting or market purposes" it would be a dead failure, and there are many like it. My advice to those who require it is to find out those Roses which do well in their respective neighbourhoods, and have a lot of them, to the utter exclusion of these shy beauties, which are not worth the room they take up. Those who wish to study the beauties of each individual Rose may have one or two plants of each variety, and these people will cut now and again one or two superb blooms. But those who want Roses everywhere—in the house, and out of it, to keep and to give away by the hundred, must proceed differently. One plant of La France will give more flowers in one season than fifty plants of Pierre Notting. A good bed of Marquise de Castellane will bloom all through the summer. Boule de Neige, though not a show Rose, gives myriads of beautiful white Camellia-like flowers, preferred beyond any other Rose by many ladies for personal adornment, and there are many others equally free-blooming and desirable.

I often hear people say, "I have a plant of La France, but I should like to try one of Pierre Notting." It is in vain to point out what I have already called the reader's attention to—experience is the only cure. I do not pretend to be a bit wiser or more clever than anybody else, so I have not the slightest hesitation in saying that in my own case it was not until I was tired of looking at plants which rarely gave any satisfaction in the way of blooms, that I began to replace these with good free-flowering varieties. I once had a collection of about 250 varieties, more than half of these utterly worthless in this district, whatever they may be in other parts of the kingdom. Now with ten times as many plants I question if I could count half the sorts. On the other hand, the plants of the three sterling varieties, La France, Baroness Rothschild, and her beautiful daughter, Merveille de Lyon, would, at the present time, in my garden, amount to something between twelve and fifteen hundred, and their numbers are still increasing. I become more and more in love with these good honest Roses, that year after year give me, in return for my care and attention, a rich, a certain, and a constant harvest of blooms. In thus concentrating my attention on the best varieties, and gradually disarding the inferior ones, or those that refuse to bloom, I may be peculiar, but I honestly believe that amateurs growing Roses in a large way, and who have had much experience, are mostly of my way of thinking.

Another fact that assists my view of the matter is, that many of our free-blooming garden Roses are among our very best show Roses, so that by having a collection of these one can kill two birds with one stone—compete at the shows, and at the same time have lots of Roses for other purposes.

It will be impossible for me here to enumerate all the Roses now in cultivation; those who wish for such a list should procure a Rose catalogue from some first-class nurseryman. I shall content myself with giving what I believe to be the most suitable sorts for a beginner, and which, in my opinion, would form a splendid collection. Before I do so, let me point out to the reader that my experiences have been entirely on a very light soil, and in a very

exposed situation, where I find the lighter Roses answer better than the darker, these latter never developing the depth of colour, or coming true to description on light poor soil like mine.

WHITE ROSES.

Merveille de Lyon (show)
Helen Paul "
Violet Bouyer "
Boule de Neige (not a show Rose)

PINK ROSES.

Baroness Rothschild (show)
Marquise de Castellane "
La France "
Madame G. Luizet "
Pride of Waltham "
Captain Christy "
Madame E. Verdier "
Mlle. E. Verdier "

RED, LIGHT RED, AND SCARLET ROSES.

Alfred Colomb (show)
A. K. Williams "
Ulrich Brunner "
Beauty of Waltham "
Duchess of Bedford "
*Duke of Edinburgh "
Dr. Andry "
E. Y. Teas "
Etienne Levet "
Marie Baumann "
Madame Victor Verdier "

DARK ROSES.

Charles Lefebvre (show)
Horace Vernet "
Fisher Holmes "

DARK ROSES (continued).

Louis Van Houtte (show)
Prince Camille de Rohan "
Xavier Olibo "

LATE AUTUMN ROSES.

Souvenir de la Malmaison (show)
Madame Isaac Perrier "
Mrs. Jowitt "

OTHER GOOD SHOW ROSES

ARE—

Countess of Oxford (show)
Countess of Rosebery "
Henri Schultheis "
Lady Sheffield "
Marie Rady "
Marie Verdier "
Mlle. Therese Levet "
Marguerite de St. Amand "
Princess Beatrice "
Star of Waltham "

OLD FAVOURITES.

Général Jacqueminot
John Hopper
Madame Noman (a little gem)
Mrs. Bosanquet " "

TWO ROSES TO GROW EVERYWHERE AND BLOOM PRETTY WELL ALWAYS.

Gloire de Dijon
Cheshunt Hybrid

The Roses mentioned, with one or two exceptions, are all Hybrid Perpetuals. In my opinion, leaving out these exceptions and a few similar ones, it is a waste of time to grow many others, if this section can be got to do well. Where walls require to be covered quickly, recourse may be had to the more rampant-growing kinds, but for smaller climbers we can still use some of the Hybrid Perpetuals.

I am not forgetting the Teas and Noisettes in making these remarks. I shall have more to say about these later on.—D. GILMOUR, JUN.

(To be continued.)

PEACH CULTURE OUT OF DOORS.

THE decline in outdoor Peach culture has been attributed by many to a gradual change in our climate, and by some to the great amount of labour bestowed on modern decorative gardening. The latter theory I believe to be nearer the truth. Of late years large flower gardens have monopolised a great portion of the gardener's time, and large quantities of plants must be grown for indoor use, and a heavy demand for cut flowers must be supplied. Under these circumstances it is not surprising to find that Peach walls are neglected. As a rule, men take to what is most popular at the time they are learning. During the last twenty years flower gardening and Grape-growing have certainly taken the lead, and have produced men accordingly. At present the most popular flowers are Orchids, which will, no doubt, result in a good supply of Orchid growers a few years hence. I do not intend to argue that our climate is exactly what it was twenty or thirty years ago, but whatever change there has been in that respect there has been a far greater change in our men. The fine crops of Peaches and Nectarines grown at Ditton Park and Singleton Abbey prove that our climate is still good enough to grow them well. Last season I gathered over 1000 fine Peaches and Nectarines from our wall, although we are within the reach of the London smoke. But to secure this result our trees received every care and attention, being kept thoroughly clean, and the shoots properly regulated during the growing season. In the flowering period we use a covering of frigi domo at night, unless the weather is very mild, and we seldom fail to have a good set. I regard a clean, healthy, well cropped Peach tree as one of the finest sights in a garden.—E. B.

[We can testify to our correspondent's success, the trees under his charge indicate most satisfactorily the excellent treatment they receive.]

DESTROYING ANTS.

I CAN vouch for the efficacy of the following in the destruction of ants. Take a small quantity of cyanide of potassium, dissolve in a little water, in this solution saturate small flocks of cotton wool, then place them on the ant runs and round the nest. A few minutes' observation will convince "T. C. A." or anyone else that this will only require to be repeated a few times to have the desired effect. Here, some time ago,

* I never could bloom this Rose well; not suitable for light soils.

we were overrun with ants, now we have only the nucleus of one small colony. Cyanide being a strong poison should be handled carefully.—A. DOUGLAS, *Baldersby Park Gardens*.

YOUR correspondent "T. C. A." in your issue of February 17th, page 131, says "that he is greatly pestered with ants in his Vine, Peach, and Orchid houses." I have had no difficulty in eradicating them from Vine and Peach houses, by clearing the houses of moveable plants and taking advantage of a few degrees of frost; this completely exterminated them.

Regarding the Orchid houses I experienced great difficulty, and quite failed in making any impression on their numbers, until about three years ago. I then commenced the cultivation of a number of *Nepenthes*. As the plants were very small at first I observed no difference for a considerable time, but ever since they began to make pitchers the ants have gradually decreased. Their fondness for the secretion in the pitchers proves their death warrant. My own experience is corroborated by a gardener to whom I gave a few plants; he wondered where all the ants had gone, but on emptying a pitcher he soon ascertained. I would strongly advise *Nepenthes* to be grown in all Orchid houses where ants are at all numerous, *N. Hookeri* and *intermedia* being as prolific and easily grown as any variety I know. *Sarracenias* would prove as useful in cool houses.—G. R.

As your correspondent "T. C. A." is anxious to get rid of this pest, perhaps some of the following methods may be of use to him. Some time ago I had charge of houses which were swarming with ants. I tried treacle placed in saucers, and by that means I caught many, but still they appeared as numerous as ever. Then I placed hollow bones about their haunts, and finally I procured cow's liver from the butcher, cut it into pieces, and laid them about the houses. The raw liver appeared to entice them, for they swarmed on to it, and by going round every hour or so with a can of hot water, and dipping the liver into the water when covered with ants, I succeeded in exterminating them. Although pieces of raw liver are not very desirable about a house, it is better than having the plants swarming with ants, and if "T. C. A." perseveres for a week or so he will soon get rid of his pest.—C. COLLINS.

I DO not know precisely the conditions under which "T. C. A." in your last number requires or wishes to get rid of ants, but if my experience is of any use to him I give it. I have a very fine *Maréchal Niel* Rose in a Fig house, and during last spring and summer a strong colony of ants made their abode at the roots. I tried every means I could think of to get rid of them, but could not. At last I steeped some cotton wool in coarse petroleum, and laid it round the base of the plant over their abode. In two days they had all decamped, I know not whither.—DELTA.

LIKE your correspondent, "T. C. A.," I have had an attack of ants to deal with where I could not with safety apply boiling water. One Sunday morning I discovered them eating the pistils of my early Peaches, apparently not touching the stamens—in fact, they went right down into the flowers after the embryo fruit as well, and what to do with them was the question, and very quickly too. So I laid some pieces of loaf sugar about, and lodged some up in the tree, and in a few hours I had the pleasure of seeing them leave the Peaches for the sugar, and was, of course, at once destroyed. I then placed a small quantity of moist sugar in a saucer at the foot of the tree, and every evening for a fortnight I went once and sometimes twice, and emptied them, sugar and all, into some hot water, baiting the saucer each time with fresh sugar. Result: saved the Peaches and exterminated the ants. If your correspondent will do likewise I think he will be equally successful.—J. W. H.

REFLEXED CHRYSANTHEMUM BOULE DE NEIGE.

As there seems a little misapprehension respecting this variety, a few remarks from one who has successfully grown it may be acceptable to some of the readers of this paper. Last spring I procured a few rooted cuttings from Mr. Owen of Maidenhead, also a number of cuttings at the latter end of April. The rooted cuttings I grew to yield specimen blooms, thinking by disbudding I might procure some large blooms; but in this I failed, and I am convinced there is no advantage in disbudding this variety, as the blooms were scarcely equal in size or substance to those grown for decorative purposes. Disbudding this variety is where many growers have made a great mistake. The cuttings I procured the last week in April, I inserted three in a small 60-sized pot and placed in a close frame, keeping them as cool as possible till rooted, when they were potted into 54's and placed outdoors on a bed of ashes. As soon as they were established in these pots I topped them and grew them till the pots were well filled with roots, and then gave them their final shift into 48 and 32-sized pots. When established I again topped them, that being the first week in July (but if part of a batch is required later than Christmas I should advise topping the second week in July). Mine were in full bloom at Christmas. I kept them outside as long as possible. Before severe frost they were placed in the coolest house I had, with a good circulation of air day and night, well supplied with weak liquid manure and a good syringing every morning. I might just mention I followed exactly the instructions given me by Mr. Owen when I procured the cuttings. This variety is very profuse when

grown as a decorative plant, bearing four to six blooms on a spray, every one opening. Another good quality, it is very dwarf, requiring no sticks, that being a great point with many growers. In conclusion, I might say there are three varieties under the name of *Boule de Neige*, but this is the only one of any use as a late variety; and I am sure if grown as I have here stated everyone will be pleased with the result.—D. I.

A GARDENERS' ORPHANAGE.

WITH reference to my suggestion for a Gardeners' Orphanage, I have already received a certain amount of promises of support if the idea can be successfully developed, and I shall be glad to hear from any gardener in the country who is ready and willing to assist me in drawing up the plans. There is an old proverb that "he gives twice who gives quickly," and therefore in the interest of these poor children I am anxious that whatever is done should be done at once. My first annual subscriber was E. G. Beale of the firm of Carter & Co., seedsmen, High Holborn; second, Mr. Bull, New Plant Establishment, King's Road, Chelsea; £10 donation from Messrs. Sutton & Sons, Reading. Letters most encouraging from Messrs. Veitch, Chelsea, Messrs. Low, Clapton Nursery, and from several influential gardeners most willing to join in supporting the scheme.—C. PENNY.

I AM sorry Mr. Penny's idea of a Gardeners' Orphanage, to commemorate the jubilee of Her Majesty, should have met with so little response. Surely the "bairns" should be the first consideration of every gardener who has any, and those who have none should spare a few shillings for such a purpose. In many cases where a gardener has secured a "plum" the qualification of having no encumbrance has helped to win it. As Mr. Penny truly observes, many die in the prime of life; and though, perhaps, enough money has been saved to start the widow in a small business, if only one of the children could be taken from her, it would materially help her to win bread for the rest. If every gardener could be persuaded to help with such a contribution as Mr. Penny suggests it would with the help of amateurs, give the Orphanage a start. I shall soon be out of place, and money is not too plentiful with me, but I would give 10s. 6d., and 5s. a year afterwards. Will not the Editor of our Journal, and our esteemed chaplain, "D. Deil," use their eloquent pens to plead for the Gardener's Orphanage?—A. L. G.



DENDROBIUM SCHNEIDERIANUM.

MR. HOLMES, gardener to C. Moseley, Esq., Thorpe, Rusholme, Manchester, is to be congratulated on his success in raising so many plants of such a distinct and pretty hybrid—a cross between that good old favourite *D. aureum* and *D. Findleyanum*. It was my pleasure to see it before Prof. Reichenbach's letter appeared describing it, and I was most favourably impressed. In growth it resembles *D. aureum*, having that peculiar transparent skin with silver veins, some of the pseudo-bulbs also being compressed after the manner of *D. Findleyanum*. It cannot fail to become a favourite; an opportunity will doubtless be afforded at the various spring shows of inspecting it, as Mr. Holmes has several plants yet to flower. I should say that it was raised in the Gardens at Cromwell Ranges, Fallowfield, where Mr. Holmes so successfully grew the collection that belonged to Mr. P. Schneider, who has now left this country, and in whose honour it has been named. The following description is in the Professor's words:—"The bulb is 6 inches high, 2 inches thick, and has but three leaves. The flower is sweet-scented, making one think a moment of that of *D. Falconeri* itself. Sepals and broader sepals white tinged with fine lilac-purple in the upper half. Lip shortly cuneate, oblong acute, very wavy, orange, with a thick oblong area of light short velvet at the base, wherefrom reddish dark radiating lines emanate, which are longest in front, a whitish area around this, washed with lightest sulphur. Column pointed with some purple lines in front and a purple dash on white anther."—BRADWEN.

CŒLOGYNE CRISTATA.

A CORRESPONDENT of the *American Florist*, in describing a visit to General Rathbone's collection of Orchids at Albany, thus refers to *Cœlogyne cristata* as a useful plant. "Three years ago he purchased at an auction sale a large plant of *Cœlogyne cristata*, the plant being of such a size as to be called 'Jumbo.' For it he paid the sum of 165 dollars. For one year he kept it without disturbing it in any way, then it was broken up, and several pieces made of the original plant. At the time of writing there are three large pans filled with magnificent bulbs, which at auction would undoubtedly bring 50 dollars to 75 dollars each. Besides these there are about fifteen smaller pieces, in value from 10 dollars to 20 dollars each. I was somewhat interested in ascertaining the number of flowers likely to be cut this season from these several plants; at a low estimate it is said to be about five hundred spikes; many of these spikes have six flowers upon them, hardly any less than five. The

bench-room occupied by these *Coelogynes* does not exceed 150 square feet, so that even if the flowers should be sold wholesale at 1 dollar per dozen, they would easily return a handsome profit. It is not probable that everyone can grow this Orchid as well as those above mentioned have been grown, but let no one be deterred by any supposed difficulty in undertaking its culture; for, as before observed in these pages, its requirements are simple, and can be easily managed by inexperienced though careful growers."

AERIDES FIELDINGI.

THE illustration (fig. 24) has been engraved from a photograph of a plant grown by Mr. Murray, Culzean Castle Gardens. This beautiful specimen has never had any special treatment, being grown in a house of stove plants with other Orchids, such as *Vandas*, &c., and the treatment received appears to suit it well. The compost which it has been grown in for years is composed mainly of good fibrous peat with a liberal mixture of fresh sphagnum and charcoal. Previous to its being shifted into the basket it now occupies it was grown in a common perforated Orchid pan, which the roots clung to with great tenacity, so that the pan was set almost whole into the basket and then filled with the compost. The plant is 3 feet high, and is fully 2 feet in diameter. Mr. Murray, who is justly proud of it, informs us that he was offered £30 for it ten



Fig. 24.—*Aerides Fieldingi*

years ago by a leading trade grower, and then it was but a small plant compared with what it is now, but at that time it was rather scarce.

AERIDES LAWRENCEI.

IN the February number of the "Orchid Album" Mr. B. S. Williams gives a superb coloured plate of this magnificent Orchid, which is the most handsome of its genus. We have seen several varieties of this *Aerides*, but that depicted in the plate referred to is far the best, and is one of the numerous fine Orchids included in the collection of the Comte de Germiny, Château de Gouville, Fontaine le Bourg, France. The flowers are of great size for an *Aerides*, the sepals and petals broad, white heavily tipped with rich crimson, the lip similar in the centre, white at the sides, and the strong curved spur greenish at the tip. The flowers are borne in long massive racemes of a most imposing appearance. When first introduced four or five years ago this species caused a great sensation, especially when the first plant was sold for 235 guineas. It was named in honour of Lady Lawrence, and as the plant will undoubtedly be scarce for a long time to come it will continue amongst the most valuable Orchids that can only be seen in the collections of a few wealthy amateurs or nurserymen. It appears to be of easy culture, growing strongly in the East Indian house.

ALNWICK SEEDLING AND CLIVE HOUSE SEEDLING GRAPES.

VERY few gardeners indeed will fail to admire the unique specimen of Grape culture (fig. 21, on page 127), but what I wish to ask Mr.

Murray most particularly is which of the two varieties he grows—Alnwick or Clive House Seedling? I was particularly impressed with the beauty of the Grapes Mr. Bell exhibited at the Crystal Palace, and had a Vine from him, also grafts of Alnwick. I have grown the two side by side, and cannot see or taste any material difference between them. The great fault with both is the peculiarity to produce split bunches, or the bunch and shoulder of the same size. They set equally well with brush or feathers, also with the dry hand rubbed down the bunch when well in bloom to remove the excessive nectar from the point of the pistil, and to deposit a few grains of pollen in its place; but I cannot succeed with the syringe used either at high or low pressure.

We have grown this Grape without fire heat, but find the flavour too sprightly, bordering on sourness; but when grown in heat it is everything we could desire. It is also one of the most rapid Grapes to colour. With us it is black in nine or ten days from its commencement to colour. We do not find it a late keeper, but capable of producing and finishing enormous crops of fine handsome Grapes, quite double the weight a Hamburg would produce if expected to colour. It is consequently suitable for market, as it is so attractive.—J. H. GOODACRE, *Elvaston*.

[Alnwick Seedling and Clive House Seedling, which our correspondent appears to have expected to find distinct, have been determined synonymous by the Fruit Committee of the Royal Horticultural Society, and they are so classed by Dr. Hogg in the last edition of the "Fruit Manual," and by Mr. Barron in "Vines and Vine Culture."]

THE FLORIST TULIP.

(Continued from page 40.)

DISTINCT as the florist Tulips in each main class are from those in another, it would nevertheless appear, on their own showing, that all have had one common origin. That at least is the evidence which seedlings seem to give, and they may be accepted as high authority in matters of family history. Gifted, like all other florist flowers, with boundless powers of variation from seed, they are by no means shy of repeating family failings, often of a far bygone day. I never saw, however, a seedling that reverted completely to the ancestral type, a flower of such unsteadiness and impurity of base colour, that we can well comprehend with what difficulty from this turbid source have been obtained, far down the stream of time, the unstained beauties of the florist Tulip, the clear decision of the ground colour, and the purity of base and stamens.

A bed of seedlings, in their maiden bloom, is as a Tulip fancy dress ball, at which many costumes, long out of date, are worn again; and in the humour of the moment, the shapes and fashions that are passed away come back in living illustration. It is the cause of much slaughter of young lives that many seedlings, to the constant disappointment of the raiser, attempt a mixture of colour at the base, or a combination of base and body colours that are out of harmony with each other's final destiny as legitimate florist flowers. Such, when passing to their fixed character, produce what is known as the "tricolor," a gay name perhaps, but a mongrel withal; once a half-tolerated class, but always an undecided flashy type of flower, in which the foundation colour was never sound.

It is the colour of the base or eye of the Tulip, conjointly with that of the rest of the petal, that determines the class of the rectified flower. If these be a discord, the tricolor is the result. Thus, a seedling with a yellow base is thus far a bizarre, and the bizarre base will carry a yellow ground colour into the flower rectified. If, however, this yellow base occur with a petal colour of lilac or purple, which belongs to the white ground class of the bybloemens, this will throw its innate white tendencies into the final ground colour, and the joint production will be a very common type of the tricolor, deriving a mixed or streaky ground colour of white and yellow from its base as a bizarre, and breeder colour as a bybloemen, while in feather or flame it will be the latter.

A pod of seed from parents of the same class is competent to produce seedlings in all three, and a great number fail through falling between any two. Some are rarer combinations than others. Perhaps the commonest form of the tricolor is that which I have just chosen as an illustration; but I have never seen the converse of a bybloemen white base with the breeder colour of a bizarre. I cannot say it is impossible, but I think it would be phenomenal. A pink or rose breeder colour, combined with a yellow base, is another not unusual form of tricolor, the pink of the petal as a breeder throwing its cognate white into the yellow ground colour which the rectified flower will derive from its bizarre base of yellow.

There is a very interesting instance of a narrow escape from being a tricolor in the case of a beautifully feathered rose Tulip called Modesty. In the feathered form she is a pure class flower of great beauty; but Modesty, oddly enough, possesses the stigma of the bizarre—that is, the "fur" upon it is yellow instead of the

white, which is the consort of the white ground classes. This is verily such a hair's breadth escape that in any but the purest feathered state this taint of the tricolor masters the flower, and Modesty flamed is unrepresentable. Streaks of undeniable yellow then lie between the white ground colour and the scarlet flame, and the flower is ruined. Even a stray splash of colour beyond strict feathering will induce the streaky butter appearance of the mixed ground colours.

There is, however, one combination of base and petal colours in the breeder state which must not be confounded with those that produce the inadmissible tricolor of scarlet, white, and yellow. That brilliant flower the scarlet bizarre has in its breeder form a yellow base with bright red petal colours; but the red or scarlet is not that of the rose breeder, with which yellow at the base forms the rose tricolor. It will be a red heightened by some tone of yellow, or lowered by some admixture of the brown that occurs so much in the breeders of the dark bizarres.

An intensely scarlet bizarre breeder is a dazzling flower, but not always a safe one at the further stage. There is a liability in it to break into duller or weaker colours than that of its breeder. "Horatio" is beautiful as a scarlet bizarre breeder, but is little worth when broken. The yellow is but pale and washy, as if a touch of the rose class were in its breeder petal, and transmitted some dash of white—an alloy of silver to its gold. On the other hand, one of our best scarlet bizarres, Dr. Hardy, breaks from a breeder of indeed an intensely rich yellow base; but the petal, though of high polish and deep colour, is of a sobered shade of red.

Referring again for a moment to the sorry contrivances and cruelties recommended for perpetration upon breeder Tulips to make them break, there is worthy of record one method which comes to us from the Holland of almost 150 years ago, and is much the prettiest conceit of all. Treating upon the breaking of Tulips, "The Dutch Florist" of 1764 assures us that "procuring new sorts every year from Holland is the best way of all for foreigners" (!)

This is far from weak, either as a touch of humour or a stroke of business; but an English florist, writing fifty years ago in apology for that ancient Dutchman, says of him: "Poor fellow! you see he never knew a 'Polyphemus!'" Well, we have lived to pity, in our present wealth of Tulips, the poverty of fifty years ago. Still, let us not vaunt ourselves nor be puffed up. Doubtless when these fresh pages are grown serene in fifty years to come, and our names shall have faded more and more from living memories into the records—the *hortus siccus*—of our gentle art, we shall be in turn behind the day in floriculture; and men will live to say of us, Ah! poor fellows, they had nothing better in those times than Sir Joseph Paxton in Tulips. They never knew a . . . !
—F. D. HORNER, *Burton-in-Lonsdale*.

(To be continued.)

TREE MEASUREMENT.

INTERESTING as it is to be able to estimate correctly the height of fine old trees, it is doubtless to those of us who are not intimately acquainted with trigonometry as an everyday study, rather apt to be looked upon as a somewhat difficult feat, but with a very superficial knowledge of angles and sides of triangles, together with a very simple contrivance, the correct height of almost any tree can be easily computed.

Procure a staff about 6 feet in length and 1 inch in thickness, upon which fasten at about 1 foot from the top a piece of half-inch board in the shape of a quarter of a circle by means of a screw and nut through the extreme angular point, and from which point suspend a plummet. The board can be of any convenient size, say about 9 inches in diameter. Divide the outer circular edge into ninety divisions or degrees, and on one side of the angular edges place two small sights or eyelets as far apart as possible. The instrument is now complete. To make use of it screw the board fast so that the plummet hangs at exactly 45°, then walk forwards or backwards until the top of the tree to be measured can be seen through both sights. Measure the distance from the bottom of the staff to the tree, to which add the height of the eye, and the sum will be the height of the tree, supposing the ground to be level.

If a position is not obtainable sufficiently far from the tree, as directed, make the quadrant fast so that the plummet hangs at 63½°, and the distance from the position whence a view of the top of the tree can be obtained through both sights to the base of the tree, will, if doubled and the height of the eye added, give the height of the tree.

But if this is also impracticable take any angle of altitude and measure the distance to the base of the tree, then, by a scale, draw a line equal to the measured distance, and at one end of this line erect a perpendicular, and at the other mark out an angle equal to the angle of altitude; then measure the perpendicular of the triangle thus formed by the scale, to which add the height of the eye, and the result will be the height of the tree.

Again, if the base of the tree be inaccessible, so that the distance

from the angle of altitude thereto cannot be obtained, take the angle of altitude at the most convenient position, then measure backward for any known distance, and take another observation, draw a plan by scale of the distance between the two stations, form angles equal to the observations, and from the point where they meet draw a perpendicular, which if measured by the scale, and the usual allowance for the height of the eye be added, will give the required height, and also by the scale the inaccessible portion of the base line can be obtained if required. Of course care must be taken that the place of observation is level and also on a level with the base of the tree.

These simple plans have much to commend them to those who are unacquainted with the working of decimals and calculations by tangents, and they also possess the advantage of not requiring any tables or knowledge of mathematical calculations, although where the principles of trigonometry, with the use of logarithms, are well understood, such knowledge can be made good use of for rapid and accurate estimations, but for ordinary use the methods given above will be found of much service when some ready means is required for estimating the height of any object for practical purposes.—W. COOMBE, *Ashton Court, Bristol*.

BEDDING PLANTS—PELARGONIUMS.

FROM this time onwards we find bedding plants take up a very large share of the gardener's time and attention, some getting perhaps more than they need in order to grow them well, while others might very well have a little more care than is generally accorded them. Of all bedding—massing plants would be the better term—none are more beautiful than flowering Pelargoniums of the Zonal class, but in order to have them at their best they require more liberal treatment than is, as a rule, given to them. In our northern parts it is too often the case that by the time the plants are becoming really effective the time for taking cuttings for another season has arrived, and after the plants have undergone the necessary cutting-back entailed by this process, the effect for the season is practically over, and the question is asked, Is it worth while endeavouring to secure a display with such unsatisfactory plants? My own experience leads to the belief that much depends on the treatment of the plants from the cutting onward. It is not necessary to refer more particularly to the matter of cuttings here than to point out that they cannot well be too large. The majority of the cuttings taken here are certainly larger when taken off the plants in autumn than many I am in the habit of seeing put into their flowering quarters in early summer. Large cuttings well rooted have, moreover, the advantage of wintering better than small weakly ones, which, in order to get any good out of, must be kept growing all through the winter months. This point is of importance with even the strongest, but a much lower temperature suits these.

Coming now to what at present requires doing, it may be pointed out that the plants are very often starved through being placed into pots much too small for them. It is no uncommon thing for strong-growing varieties to be placed into 3-inch pots, sometimes two plants into that size. Treatment of this kind does not result in obtaining anything better than a set of plants which are merely kept existing, and which, when planted out, stand still for so long as the plants are taking to the soil. The size of pots we use for the strongest, such as Henry Jacoby, are those 6 inches across. The stronger Vesuvius and others go into the same size, the weaker into 4 and 5-inch pots, the latter sizes doing also for the variegated sorts. Like many more who have a difficulty in getting good potting soil, the quantity consumed in preparing these and other bedding plants has always been a matter of regretful consideration. Last season I tried the best of the material in our compost heap, which is made out of the rubbish, &c., from the garden and other places. As it was very open all the drainage required was simply a bit of potsherd placed over the hole in the bottom of the pot. The material was pressed in pretty firmly, and with the addition of some manure later on applied when watering, the plants turned out quite satisfactorily. In order to save in labour, all our plants are potted in the structures in which they are to be grown. The plants come out of the cutting boxes with much better roots if the soil is in a medium condition as regards moisture, and instead of taking the plants out singly it is much better to lift them in clumps and shake all the soil from the roots before disentangling them.

In potting, the most expeditious method is as follows;—Take a pot, and holding it steady with the left hand, put a handful or more of soil in with the right hand, so placing it as to fill one side of the pot with soil, leaving the other side clear. Then lift a plant with the left hand, let its roots into the pot and lying against the face of soil, at the same time with the right hand have another handful of soil ready to place over the roots, and add as much as is necessary to fill to the required depth, then firm by pressing in the soil all round in the ordinary manner.

Our plants are mostly established in vineries, the more tender kinds being transferred to cold structures as early in April as weather will permit. All they need there is to be kept close and quiet for a week or so, and after that treat as required. Hardier varieties have to be placed out of doors, and by far the best position for these is an open one at the bottom of the back wall of vineries, Peach houses, or other structures. They are matted up closely for a week or more, when, by taking the advantage of mild showery, the mats are removed, though kept in readiness for any frosts or cold winds that may set in. The most distinct advantages secured by setting the plants out in such a

position are these—they are not so much affected by frost; this may not be apparent to many, but it is a fact nevertheless, and the soil is kept in a more equably moist condition with less labour in watering, resulting in the plants, as a rule, being in much better condition for planting out.

Pelargoniums may be propagated with certainty of success at this season. Flowering varieties are, of course, better from autumn-struck cuttings, but in instances where any of these are wanted to be increased, very good plants can be had by spring propagation. Variegated sorts, though not so large, do very well when struck at this season. The plants to be attended to are, in the first place, not to be in too great a hurry, but to allow shoots which produce cuttings to grow on the plants until they have become a good size, for if a cutting from 6 to 9 inches in length can be secured, it will prove more satisfactory in the end than three half the length. The cuttings should be in a growing condition when taken, and they strike most rapidly when put singly into thumb pots, allowing them until rooted a stove temperature. The soil used should be very open to induce the free emission of roots. When fairly well rooted the tips of the shoots should be taken out. The easiest way of bringing on the plants is to fill the bottom of a cold frame with light soil, not too rich, and into this plant out when nicely rooted. The frame must be kept close for a time until the roots take to the new soil, thereafter keep as open as the weather will allow. When wanted, the plants lift well.

In the desire to get work forward we may err in doing things too quickly for the well-being of the subjects operated on. Thus there is nothing gained in propagating fast-growing softwooded plants too early, no matter what they may be. But as our stock of most plants is kept over winter on old growing plants in pots, and these as few in number as can safely be depended on, a batch of cuttings is put in just now, from which material for propagation is secured later on, the stock plants, in the meantime, being thrown away. The best way to do these is to strike in beds of sand with a little light material added, and well heated from underneath. But they will be found to do perfectly well in boxes covered with sheets of glass if the cuttings be put in so quickly as to prevent flagging, and the sand has been well warmed first by placing the boxes on the pipes in one of the hothouses. When the cuttings are inserted the boxes must be returned to their places on the pipes, and it matters very little where the pipes are; under stages does very well, only they must be taken out immediately roots are formed. When moderately well rooted they are boxed off and kept growing from the middle of March to the end of April. Cuttings strike best, and there is little labour connected with them, as they may in most cases be planted in cold frames into rich open soil at once. Cuttings must be strong to do this, and the frames kept close and covered day and night until fresh growth takes place. The reason why so much withered material is annually planted out comes from too early propagation, too much coddling in warm structures thereafter, and then that marvellous process known as "hardening off," which turns green leaves into brown, and plump succulent stems into hard and shrivelled sticks. Cold is bad doubtless, but hot drying sunshine is worse under the conditions in which softwooded plants are produced, and I think most of the blame must be apportioned to the sun for the results effected by "hardening off." Seeds of plants which grow slowly should now be sown, but all kinds that grow quickly should now be left until April, or even later in some instances. A seedling which has the opportunity of growing from the very first under the very slightest artificial conditions makes wonderful headway, and outstrips those sown earlier and coddled up. We shall have something to say about hardier kinds later.—B.



It is proposed to make comparative trials of the following vegetables this season in the ROYAL HORTICULTURAL SOCIETY'S GARDENS, CHISWICK, under the direction of the Fruit and Vegetable Committee—viz., Cabbages, Tomatoes, Cauliflowers, Onions, Turnips, new varieties of Potatoes and Peas. Persons desirous of contributing examples of any of these objects for the opinion of the Committee are requested to forward the same as early as may be possible to the Superintendent, Royal Horticultural Society's Gardens, Chiswick.

— THE schedule of prizes at the Horticultural Exhibitions to be held at the CRYSTAL PALACE, SYDENHAM, this year, is now issued, and we are glad to see that the usual liberal arrangements have been made. The Shows will be held on the following dates:—Spring Exhibition, March 26th; Summer Exhibition, May 21st; Roses, July 2nd; Fruit and National Dahlia Show, September 2nd and 3rd; Autumn Fruit Show, October 6th to 8th; and Chrysanthemums, November 4th and

5th. Schedules can be obtained from the Superintendent, Mr. W. G. Head.

— A CORRESPONDENT ("D., Teignmouth,") states that he mulched fruit trees last summer with GERMAN MOSS LITTER, and now finds the roots of the trees full of fungus; he desires to know if we have heard of similar cases before, and to ascertain a reason for this occurrence. We have not heard of similar cases, though the existence of such may possibly be known to some of our readers.

— IT is with regret that we announce the death, in her seventieth year, of MADAME LE GRELLE, which occurred on the 17th inst., at her residence at Berehem, near Antwerp. Those of our readers who have perused the reports of horticultural exhibitions in Belgium must have observed the frequency of Madame Le Grelle's name as a prizewinner, and visitors who have had the privilege of inspecting the Marantas and other ornamental foliage plants that achieved so much success, will admit their excellence and beauty. Madame Le Grelle was a Chevalier of the Order of Leopold, a great patron of horticulture, and judging from the extensive collection of shells we remember seeing at her delightful residence, must have been an earnest conchologist. The deceased lady was much esteemed by all who knew her, and her loss will be lamented by a wide circle of friends.

— WE further regret to learn of the death of MRS. ANNIE FEATHERSTONE, wife of Mr. Robert Featherstone of St. Ann's Nursery, Kirkstall, Leeds, which occurred on the 17th inst., in the fifty-fourth year of her age. Much sympathy will be extended to Mr. Featherstone and his family on the great loss they have sustained.

— A CORRESPONDENT, "S.," calls attention to the peculiarity of COL LETIAS gradually changing their character, and sends samples, remarking, "Of *C. horrida* a branch is sent with the divisions and spines cylindrical and needle like. When the plant was received it was all like that, but now the other portion has the flattened spines of *C. cruciata*. The latter also shows much variability, the spinose branches being much broader and more distantly placed in some cases than in others. I also send a sample of fasciated *Eucharis* blooms, the tubes of the corolla, ovaries, and peduncles having grown together."

— THE Hon. Sec., Mr. C. A. Partridge, informs us that the LUDLOW HORTICULTURAL SOCIETY will hold their annual Exhibition this year on Thursday, August 25th. We also learn that the Wimbledon Horticultural Society has elected Dr. Walker, 12, Longfield Road, as Hon. Secretary, and Mr. J. Lyne, Belvedere Gardens, as Assistant Secretary.

— LARGE consignments of CUT FLOWERS from the Continent are now being received in Covent Garden Market, Violets, Narcissi, White (Roman) Hyacinths, and Acacias (chiefly *A. Farnesiana* and *A. dealbata*) having been sold by auction recently in great quantities. Some hundreds of baskets of Acacia have been disposed of, and the demand seems to be extensive, although the prices realised in several cases would scarcely seem sufficient to pay carriage. Yet according to a correspondent of one of the London daily papers at the Nice "Bataille de Fleurs" recently, flowers were not so abundant as usual, "Violets few frozen, and scentless, and Roses conspicuous by their absence." It appears, however, that at this Floral Festival Carnations, White Lilac, Marigolds, and Acacia were abundant. One carriage, occupied by a lady attired in a mauve-coloured dress, was loaded with White Lilac, wreaths being wound round the wheels and festooned upon the horses.

— MANCHESTER ROYAL JUBILEE EXHIBITION.—The horticultural decorations of the industrial or principal transept of the above have been entrusted to the Liverpool Horticultural Company (John Cowan), Liverpool. At the intersection of the two main transepts a dome, rising to the height of 140 feet and 90 feet in diameter, is to be surrounded by a rockery 9 feet wide, to be erected by Mr. William Clapham of Stockport. This is to be planted and kept in order by the Company for the period that the Exhibition is open to the public. Four groups, 25 feet by 15, with a height of 30 feet, are to be arranged at intervals on each side of the rockery. Tree Ferns, Palms, Dracænas, and other large ornamental and flowering plants, tubs of a uniform pattern, in which specimens are to be planted, will give combined an imposing and pleasing effect.

— NATIONAL FLORAL SOCIETIES.—Mr. Shirley Hibberd, Kew, near London, Hon. Treasurer, and Mr. James Douglas, Great Gearies, Ilford,

Essex, Hon. Sec. of the National Auricula and Primula Society (southern section), and National Carnation and Picotee Society (southern section), have issued the following appeal:—"The subscribers to these Societies have so generously sustained the joint Committees by providing funds for the exhibitions and other operations that it is with pleasurable confidence the Treasurer and Secretary now appeal for aid to meet the extra expenses that must be incurred in this Jubilee year. The Committees are endeavouring to effect a comprehensive and brilliant vindication of the flowers the Societies represent in the season now opening, and respectfully request that the subscribers will afford the necessary means. In several instances subscribers have intimated their intention of doubling the amount of their usual subscriptions, and it is hoped that this rule will be generally observed." The next Exhibitions are announced to be held in the conservatory of the Royal Horticultural Society at South Kensington. Auriculas and Primulas, April 26th; Carnations and Picotees, July 26th.

— **GARDENING APPOINTMENT.**—Mr. James Chalmers, late foreman at Callander Park, Falkirk, N.B., has been appointed head gardener to the Right Hon. the Earl of Zetland, Kerse, Falkirk, N.B.

— **THE annual report of the ROYAL SOUTHAMPTON HORTICULTURAL SOCIETY** is of a more satisfactory nature than usual, a cash balance of £90 5s. 2d. remaining to the Society's credit, the result of last year's exhibitions. The summer Show was a great success, which was insured in a great measure by the presence of Princess Beatrice and Prince Henry of Battenberg, the receipts being—first day, £174 5s. 6d.; second day, £436 16s. 9d.; the total, with tickets sold previous to the Show, being £623 4s. 9d. An experiment on the first day of this Show by admitting the public after 6 P.M. at 6d., providing music and other amusements up to 9 P.M. was most successful, nearly £60 being taken at the gates, more than sufficient to pay for the extra amusements on both days. The Shows this year will be held on July 30th and August 1st, the autumn Show on November 1st and 2nd, this early date being selected to avoid clashing with other large shows.

— **A COMMITTEE meeting of the WILTS HORTICULTURAL SOCIETY**, which includes the Mayor (Mr. Fred. Griffin), several ex-Mayors, and two Councillors, was held in the Council Chamber, Salisbury, on the afternoon of the 17th inst., under the presidency of the Mayor, when the Earl of Radnor (Lord Lieutenant of the county) and the Earl of Pembroke were re-elected as President and Vice-President of the Society, as also were the Committee and Hon. Secretary (Mr. W. H. Williams), to whom a vote of thanks, proposed by the Mayor and seconded by Mr. H. W. Ward, was accorded for the time, energy, and ability which he had so ungrudgingly devoted to the interest of the Society since its resuscitation. It was decided to hold a summer show about the middle of August, and a Chrysanthemum and fruit show early in November, the dates to be arranged later on. The same evening a dinner in connection with the Society was held in the banqueting room of the Council Chamber, at which about 150 of the most influential citizens and gardeners of the neighbourhood were present. The Mayor presided, and the ex-Mayor (W. M. Hammick, Esq.) occupied the vice chair, being supported by the Rev. T. J. Woodall, the Rev. Canon Cholmeley, &c. After the toasts of "The Queen and Royal Family," "The Bishop and Clergy of the Diocese," "The President of the Society," "Mayor and Corporation," had been separately given and duly responded to, followed the toast of the evening, "The Wilts Horticultural Society," proposed by the Mayor, and ably responded to by the Hon. Secretary, whose name was coupled with the toast. C. W. Gater, Esq., and Mr. Garland responded to the toast of "The Exhibitors," and Mr. H. W. Ward to that of "Judges," and Messrs. Curry, Tub, Smith (Palace Gardens), and Thomson (Norman Court) replied to the toast of "The Gardeners."

— **IN reply to a question in the House of Commons** recently respecting the **COST OF THE LONDON PARKS**, Mr. Plunket gave the following particulars:—"The site of Kennington Park was transferred by the Duchy of Cornwall to the Commissioners of Public Works without payment. The cost to the Treasury in laying it out was about £5000. The cost of the purchase and laying out of Victoria Park (about £133,000) was met out of funds provided from the land revenue of the Crown. The site of Bethnal Green Gardens was presented by the inhabitants; the cost of laying out (about £1500) was borne by the Treasury. The total cost of Battersea Park and estate has amounted to £350,000, of which about £105,000 was voted by Parliament, £200,000

was borrowed, and £45,000 was applied from proceeds of sales and rents. Of the £200,000 borrowed, £100,000 has been repaid from the last mentioned source. The Westminster Bridge Estate was not purchased, but was transferred to the Commissioners of Works to meet the cost of erecting a new bridge. That work involved a total outlay of £552,000, including the expenditure on approaches, £133,000. Of the £552,000, £407,000 was provided from votes of Parliament, and the remainder from the proceeds of sales of part of the estate. The Brompton Cemetery cost the Treasury £77,000. The annual income is derived from the sale of grants of rights of interment and from fees. The capital expenditure from votes of Parliaments on Orange Street Waterworks had amounted to nearly £36,000. As to Trafalgar Square, he was not aware that it had ever been proposed to transfer it to the Commissioners, and he would like to consider the subject further. The charge for its maintenance was about £250 a year, besides the cost of providing water for the fountains.

— **WITH the view of furthering the experiments in the CULTIVATION OF TOBACCO IN THIS COUNTRY**, the Government have resolved to extend the permission given last year to this year also. Messrs. Veitch & Son of Exeter have, we are informed, had an official communication authorising their planting a plot of ground with Tobacco for experimental purposes in their nurseries in the New North Road, they complying with the usual regulations and giving the necessary guarantee to the Inland Revenue Department. Several of the leading seed firms also intend continuing their experiments.

— **HIGH TEMPERATURES IN AUSTRALIA.**—The north-easters, which, as Kingsley told us, the flesh of Britons is heir to, have undoubtedly their prosaic side; but they are really preferable, says the *British Australasian*, to the heat which Southern and Central Australia enjoyed early in January. The "Liguria" brings word that in Melbourne on the 8th the thermometer stood at 104° in the shade, while at Sandhurst it was 115°. At Adelaide, on the same day, it was over 111°, and on the Teetulpa goldfield 116° in the shade was registered. At Port Pirie it was 110°, at Strathalbyn 115°; while in Western New South Wales it was 110° at Euston and 115° at Balranald. Sydney, on the east coast, though further north, was comparatively cool, at not much above 90° in the shade, while in Queensland the weather alternated between heat and storm, as it so often does in January. But even under the best circumstances, and in the driest of atmospheres, when the heat exceeds 100° there is a feeling about a man that the less he has to do with clothes the better; and there is no doubt that in January the climates of Tasmania and New Zealand are preferable to that of Australia.

— **THE Americans** are evidently great admirers of flowers, and not very particular what they pay to procure them judging from the following list of retail prices in New York—February 1st. Roses, per dozen, Papa Goutier, 8s.; Niphotos and Souvenir d'un Ami, 7s.; and Catherine Mermet, 12s.; W. F. Bennett, 1s. each; La France, 1s. to 2s. each; and Général Jacqueminot, 2s. to 4s. each; Carnations, 2s. to 4s. per dozen; Lilac, 6s. to 8s. a spray; and Violets 6s. per bunch. These prices seem almost fabulous, and if they appeared in a less authority than the "American Florist" we should have been inclined to doubt their accuracy. British florists occasionally command substantial prices, but those named will make them envy their transatlantic cousins.

HARDY FRUIT CULTURE.

I AM pleased to see the question of hardy fruit culture brought so prominently before your readers, and hope it will receive the attention it so well deserves. Although Kent is, without doubt, the most famous county for hardy fruit culture, there are many sheltered places scattered over the country capable of producing good crops of serviceable fruit, especially Apples, many of which were turned to good account by our forefathers before fruit was so easily transferred from one end of the country to the other as is done nowadays.

But the present occupiers of land seem to lack the energy of our forefathers in the art of planting and grafting. Why this should be requires explaining, but it is a deplorable fact that should not be tolerated. Go where we will we see grand old orchards rapidly going to decay without any attempt to renovate them, and unless something is speedily done in the way of grubbing and planting, Apple orchards will be a thing of the past in this country. I saw what appeared to be an excellent arrangement at Madresfield Court a few years ago. Mr. Crump had some hundreds of Apple trees growing on, as I understood, for the use of the tenantry, but perhaps Mr. Crump will give us particulars of his arrangements.

It is not only a question of varieties, but also of the style of tree.

For my part I prefer the bush to the standard, as it comes into bearing much earlier, and produces quite as heavy crops, and the fruit is equally fine, the trees are not so much exposed to the wind; but bush trees could not be grown in hedges where cattle grazed. About ten years ago we had a hundred bush trees from Messrs. F. & A. Dickson in almost as many varieties. The Upton Nurseries are elevated and exposed, and we would expect anything that would grow there would answer here, and we are not very far from the mark, as we have already abundance of fruit. From these trees we are able to make an excellent choice of varieties suitable for this locality.

Two years ago I sent to the Derbyshire Agricultural Show twenty-five branches laden with fruit that I considered the most profitable and suitable for this district, and it was curious to hear the odd remarks passed on them. Some thought them too flash and would encourage trespassers, &c., but I think if they were more extensively cultivated we could spare a few pocketfuls better. At Melbourne, ten miles south of us, land for market gardening and fruit growing is eagerly sought, and as much as £12 per acre per annum is given, and a few miles north of us we have Dale Abbey, once famous for its fine Apple orchards, the land only making £2 per acre. The latter place is within easy reach of good markets—Sheffield, Manchester, Leeds, &c.—yet these fine old trees are allowed to go to decay in a favourable locality both for producing and selling, and where the land is tolerably cheap and easily procured, all for the want of confidence and energy.

The following Apples succeed best in this locality. We have two orchards at different elevations, one on clay subsoil, the other on gravel. We get the largest fruit off the clay, and the finest coloured fruit off the gravel, but both orchards bear equally well, and the few varieties given below are selected from 150 different sorts after careful observation for several years.

DESSERT APPLES.—1, Early Margaret, August. 2, Mr. Gladstone, September. 3, Quarenden, September. 4, Irish Peach, October. 5, Lord Lennox, October and November. 6, Kerry Pippin, October and November. 7, King of the Pippins, November. 8, Cox Orange Pippin, November. 9, Claygate Pearmain, November and December. 10, Ribston Pippin, December and January. 11, Blenheim Pippin, December and January. 12, Wyken Pippin, January and February. 13, Court Pendu Plat, February and March. 14, Dutch Mignonne, February and March. 16, Lemon Pippin, February to April. 16, Sturmer Pippin, February to April. 17, Pitmaston Nonpareil, March to May. 18, Royal Russet, March to May.

KITCHEN APPLES.—1, Lord Suffield, August. 2, Keswick Codlin, September. 3, Manks Codlin, October. 4, Bramley's Seedling, October. 5, Cox Pomona, October. 6, Warner's King, October and November. 7, Alfriston, November to May. 8, Waltham Abbey, November to March. 9, Wadhurst Pippin, December to April. 10, Lane's Prince Albert, December. 11, Lord Derby, December. 12, Domino, October to December. 13, Peasgood's Nonesuch, November. 14, Beauty of Kent, December and January. 15, Rymer, March to May. 16, Northern Greening, March to May. 17, Dumelow's Seedling, March to May. 18, Rhode Island Greening, April and May.

The above are all good growing reliable varieties suitable for either private or market gardens. Many of the late keeping kitchen Apples are useful for dessert late in the season. I should select a gritty loam resting on red sandstone for Apples. I prefer bush trees to standards where they can be protected from cattle. Standards are usually twelve to fifteen years before they produce anything like a crop, and I have gathered here ten bushels of good Apples from bush trees only planted eight years.—J. H. GOODACRE, *Elvaston*.

I WAS much interested in Mr. Warner's remarks under the above heading, more especially regarding Lord Suffield. I grew a few trees in Essex in light soil with a gravel subsoil and found they did not thrive at all, and I thereupon discarded them. The fruit is exceedingly handsome, but is very light and does not keep well. I much prefer Duchess of Oldenburg, which is quite as fruitful. Mr. Warner finds Pond's Seedling to be superior. I presume he refers to Potts' Seedling, which is an early and large culinary Apple. I have not grown it myself, but have heard it highly spoken of. As an early market Apple I have a high opinion of Mr. Gladstone, which is very showy, and if eaten as soon as ripe of not bad quality, but it soon gets woolly. Warner's King is a noble Apple in all respects.—H. S. EASTY.

THE HOLLYHOCK.

IN the Journal of February 10th a hope is expressed by "W. D." that growers of this flower may be tempted to give a list of any good named sorts now in cultivation, and any information which may lead to renewed interest in this fine old garden plant. In response I would first state that last autumn south, not north, took the honours:—Mr. James Blundell, three first-class certificates for new seedling Hollyhocks, Shirley Hibberd, Primrose Gem, and Princess of Wales; Messrs. Webb and Brand, first-class certificate for seedling Crimson Queen, and a bronze Banksian medal for a collection of older sorts; and Mr. Chater of Cambridge first-class certificate for seedling Revival. Blooms were exhibited by me last autumn from seed sown in March of the same year.

My own list of seedlings for the year 1886 includes the above-mentioned Shirley Hibberd, Primrose Gem, and Princess of Wales; and also Excellent, Prince of Wales, A. F. Barron, Contrast, Princess Beatrice, Mary Anderson, John Laing, Florence Nightingale, Baroness Rothschild,

Miss Roupell, Miss Jekyl, and Dr. Hogg. I have at least seventy distinct double Hollyhocks true to name, show and fancy varieties.

The article by "W. D." is very interesting and singularly correct. I could vouch for all he has written. It is evident that he has studied the subject long and carefully. I well remember the various shows alluded to. I have just learnt that Mr. Roupell, F.R.H.S., has offered special prizes for Hollyhocks this year at South Kensington.—JAMES BLUNDELL, *West Dulwich*.

YOUR correspondent, "W. D.," has given us a capital paper on the Hollyhock. The present manager of one of our branch nurseries was at the time he names (1850-60) our chief Hollyhock grower, and exclaimed on reading that article, "I think 'W. D.' appears to have a good knowledge of what he is writing about." I remember purchasing Mr. Parsons' seedlings, which were the foundation of the extensive collection we so long cultivated. Some of them were much in advance of pre-existing kinds, and it was from them I raised the grand varieties, Lizzie, Beauty of Cheshunt, Glory of Cheshunt, and others. The demand for these and others was so great that we sold in one year 24,000 plants and 4 bushels of seed, the latter going away principally in 5s. packets of twelve varieties in each packet. When visiting some of our large gardens lately there were two flowers I missed, the standard Roses in June and July, and the Hollyhocks in August and September. The former were absent from fashion or caprice, the latter from the uncertainty of a successful flowering, but they must both come back again. I remember the late Sir J. Paxton saying to me at Chatsworth, "I want a lot of standard Roses on 4 or 5 feet stems to introduce elevated masses of colour that may be seen at a distance when the Lilacs, Laburnums, Thorns, and other spring-flowering shrubs are over." And he was right. Large gardens certainly want "elevated masses" of Roses in June and July, and no less do they want elevated masses of Hollyhocks in August and September. The former may be purchased with almost a certainty of realising the object sought. With the latter there is more difficulty, or, rather, perhaps we should say less certainty, owing to the prevalence of a disease from which they wither and die just before coming into flower. Nothing can be more provoking and prejudicial to the beauty of the garden than the ugly blanks thus created. But we believe the disease may be avoided. Let us ask ourselves what was the cause of it. The Hollyhock is properly a hardy biennial, and as such it should be sown one year (July) out of doors, and not in heat to bloom the next. But for years past it has been sown in heat in spring and pushed on to bloom in the autumn of the same year, treating it as a tender annual, and then trying to multiply it by cuttings. This unnatural and fast life is in our opinion the cause of the disease which, once existent, may probably be contagious. So valuable is the Hollyhock for many positions in gardens that it is worth while making the experiment, not in one place only but in hundreds of places, whether after obtaining the seed from a healthy stock, a system of cultivation conformable to the nature of the plant will not give us the natural result of a certain development of healthy flowers. Sow thinly in the open ground in July, transplant where transplanting is wanted early in April; healthy spikes of flowers will, we believe, follow in July, August, or September, and healthy seeds for a succession may be garnered before winter.—WILLIAM PAUL, *Pauls' Nurseries, Waltham Cross, Herts*.

GRAPES WITHOUT HEAT FOR THE MILLION.

(Continued from page 129.)

VINES can be grown satisfactorily in pots, but they cause more trouble in watering and feeding than when planted out. Good Grapes can be grown against a wall, the pots stood on the soil, and being removed to a cool and dry place in winter, the pots covered with dry litter to save the roots from frost. A house is best. It may be above ground where the soil is wet. A narrow house will do; 6 feet wide and 4 feet wide at the top; the sides 8 feet high; the top lights lifting for ventilation; a board hung on both sides will answer for the bottom; with boarded sides 18 inches high, which may be taken off the length of the lights, or, better, let it add to the height of the house. Train the Vines to wires 1 foot from the glass, allowing 2 feet 6 inches between the Vines. Another plan is having the pathway sunk, the sides held up by single brick walls, 18-inch single brick side walls, one course above ground, 8 feet 6 inches in centre, top ventilation only, no side lights, simply a glass roof, 10 feet wide, and a row of Vines on each side, the roof wired a foot from the glass. It answers just as well to plant the Vine or Vines outside, and introduce the stems beneath the wall plate. Such houses were common formerly. The Vines are raised from eyes, cut like a wedge, but on the back of the shoot downward for an inch and cut transversely above the bud. They are thrust in level with the surface of turfy loam in pots singly in 3-inch pots. They must be kept moist. Any time before they begin growing is the time to insert them, or in February or March. When they have filled the 3-inch pots with roots or grown a few inches high, place them singly in 6-inch pots. Those in small pots will only need shifting. Shade from bright sun until established. Duly attend with supplies of water and liquid manure. Train near the glass or wall. Cut back to one or two eyes in winter. When grown a little turn them out of the pots, remove all the soil, replace in fresh soil, giving 9-inch

pots. If weak, return to the same pots—i.e., 6 or 7-inch. When established, remove the weakest if there be two shoots. Pinch laterals at one joint, and afterwards stop the lead when it has made 8 feet of growth. Some will become strong enough to fruit; indeed, some of those in 6-inch pots may do so. I saw some this year fruiting in 6-inch pots—Foster's Seedling—good.

There are many ways of fruiting Vines in pots. 1, Fruit them on the whole of the cane made in the previous year, taking six or more bunches of Grapes. This means so weakening it that it will be no good a second year, so that we need alternate years of growing and fruiting. 2, Allowing a moderate crop and fruiting in consecutive years. The canes in this case are left 3 feet long, and three or four bunches are taken, the Vine being allowed to extend and cut back to say 18 inches and so on, the fruit after the first year being borne from spurs. Sometimes the rods are twisted round stakes, or they are kept in bush form. Each has its advocates. It does not matter what way the Vine is trained, only procure good wood, have it ripe and the buds plump. Grapes are sure to come, prune as we will. I prefer to grow a Vine to fruiting strength, then fruit it, and have others for succeeding crops. There is no need to throw the Vines away. Cut them down, disroot, or remove the soil when started into growth and repot. It will make a fruiting cane that year or the next, and the fruiting and non-fruiting can be grown together, the one alternate with the other. The Vines so far, however, are only in 9-inch pots. If to be fruited, they are put in 12 or 13-inch in spring, merely loosening the sides of the ball. The so-called growing Vines in pots with more roots outside than in is not the plan to be adopted. If the Vines are not strong enough, cut them back to a couple of eyes, shake out and place in the 13-inch pots, not of course until they have started into growth, and they will make a cane in thickness between the little finger and thumb, giving half a dozen Grape bunches. To grow Vines in pots well under cool treatment we require—1, yearling; 2, two year olds; 3, three year olds; fourth year the Grapes. The one and two year growths can be made under the other; but the third must be made in an equally advantageous position with the fruiting; in fact, trained between them.

If we follow the constant fruiting system we must employ larger pots from time to time, or the Vines can be kept in the same pots by turning them over, reducing the ball, cutting back the strong or long roots, and returning to the same pots. It is best done when the Vines have leaves on them, after the wood becomes ripe, or just before the buds swell. So far from the Vine resenting attentions of this character, it succeeds all the better. Serviceable Vines can be grown in pots or planted out. Surface dressings are facilitated by strips of zinc about 6 inches wide made to form a rim about the pots, being thrust between the soil and put inside, forming a space 3 or 4 inches deep. That will take the surface dressings, which should be added to or renewed until the Grapes change colour. The pots must be covered with dry litter to keep the roots safe from frost in winter.

The system of raising Vines from eyes or buds is a slow one. There is the quicker plan of Mr. Miller's, described and figured in the *Journal of Horticulture*, vol. xxxvii., pages 223 and 232, which consists of layering the eyes or buds of a strong well-ripened cane into pots. They can be drained and filled with soil that will suit for two years as well as one. The eyes should be disposed in the centre of the pots and about 2 inches below the rim, securing with two pegs, one on each side. It can be done after, or more safely before, they start into growth. If fed there is no reason why they should not gain sufficient strength for fruiting the season following the layering. The layers should not be detached until autumn, or when the leaves change colour for falling. It is a handy mode of propagation, and a great advance on the single eye system.

OTHER PLACES FOR VINES.—I have seen a Royal Muscadine growing well in a shop window with a south aspect. It had the roots outside, and being a fruiterer's shop the Vine garniture was very appropriate. Only fancy windows with sunny aspects having a fringe of Vine foliage around hung with luscious Grapes. It is worth attempting in large windows. Then we read of Vines and Grapes, too, in very unlikely places. Laundries, engine houses, workshops. The fact is, wherever there is light and sun Vines grow and produce Grapes. There is no climber to equal it for beauty, and none so accommodating and easily catered for. Free soils that will grow climbers will grow Vines. There are verandahs that are slated. Glaze with stout glass, 32-oz., and we have an open vinery. Due south the Grapes would ripen well; indeed, under glass copings they ripen better than on walls. The Vine foliage would afford the requisite shade in summer, and I can vouch for the Grapes ripening and being useful. Any system of training could be practised, and Vine shoots depending would not interfere with the principal foliage, and that receiving light above and about the bunches the crop is sure.

DRESSING.—After pruning thoroughly cleanse the house or case. Syringe it first with hot water (140°), woodwork, walls, &c.; it softens dirt, and is a good insecticide. Wash the woodwork with soap and water, getting well into the corners and angles, the glass with clear water, and limewash the walls and wood or other material of the sides or front. Wash the woodwork and glass outside. Dirt wastes houses faster than anything by holding the wet. Strip the Vines of any loose bark, making no attempt at peeling and scraping. Wash them with warm soapy water, 8 ozs. softsoap to a gallon of water, using a rather stiff brush. Repeat when dry. Tie in position. The house, the case, the house or wall Vines are a pleasure to look at all the winter. Copings can be taken off, cleansed, and put away or utilised. Those that are of wood can be painted. It is folly leaving things in the wet when they are not wanted.

INSECTS, &c.—Red spider is the worst. Keep Vines well supplied with water and nutriment and it will not appear. Sponging or brushing with a soft brush the infested foliage is the best remedy if it is applied in time, using softsoap 2 ozs. to a gallon of water. Syringings may be resorted to in case of bad infections, using clear rain water. Thrips are a consequence of drought. They are best destroyed by fumigation with tobacco paper, having the foliage dry. Repeat if necessary. Scale will not trouble if the winter dressing is properly attended to, and if aphides appear fumigate. Mildew will succumb to flower of sulphur dusted over the affected parts. The thing is, a keen eye and prompt application of the remedy on the first assault of the enemy.—G. ABBEY.

CUTTING SEED POTATOES.

THIS is more often practised on the farm than in the garden, but it is a good plan with larger tubers and may be adopted everywhere. I have hardly ever met with anyone who approved of cutting kidney Potatoes, and, what is more curious still, very few can give a good reason for not cutting kidney Potatoes for seed like the round ones. I do not know why any objection should be made to the practice in their case, as we have frequently cut large kidneys into two or three pieces, planted them in the ordinary way, and the crop was equal in every respect to that derived from uncut tubers. In fact, the kidney varieties will bear cutting as well as any of the round sorts, and why there should be any distinction made between them in this respect cannot be explained. No Potato, however, should ever be cut that is regarded as a small one, as only those of a large size can be cut without injury or deterioration to the crop.

The cutting cannot be done too carefully—at least, one prominent eye must be left on each piece, and if possible the cuttings should always be done in such a manner that the tuber is equally divided. We have all heard of the plan of cutting Potatoes to single eyes with the object of rapidly increasing a variety or to see what weight of crop could be secured from a single tuber; but I do not approve of the system, and I would never cut any tuber into more than two or three pieces at most. When cutting is practised it is best to do it two or three days before planting, as the cut part then has time to become dry and firm.—J. MUIR, *Margam*.

VINES AND FERNS.

WHEN once a notion becomes firmly established in the British mind it is by no means easy to remove. Whoever formulated the idea that Grapes and plants cannot be well grown in the same house, must be well satisfied with its reception. Evidence to the contrary has been repeatedly adduced, but the idea remains fixed as firmly as ever in the minds of a not inconsiderable section of the community. Unquestionably there are many plants that cannot be grown satisfactorily under Vines. Sun-loving plants will not thrive in the shade, and these include the great majority that are grown for the beauty of their flowers; but there are shade-loving plants, amongst which are Ferns, and, as every one knows, several of our British species luxuriate under the dense shade of trees in woods and plantations, it would be strange indeed if exotic kinds would not thrive satisfactorily in vineries. Numbers of persons know from experience that they will do so, but an example on a large scale is often necessary for placing the matter beyond dispute.

Whoever may visit the fine glass structures in the Chilwell Nurseries of Messrs. J. R. Pearson & Sons during the summer or early autumn will see Grapes and Ferns grown together extensively, and both grown well. Good, however, as the Grapes are, it is a question if the Ferns would not attract the greater share of attention. The long bold banks of them down the 100 feet long houses are quite unique. They enhance materially the effect of the structures and afford cartloads of fronds for cutting. The demand for fronds of *Adiantum cuneatum* is so great in the flower markets, that the Chilwell method of producing them is worthy of prominent notice. The engraving, from a photograph, represents a portion of one of the 100 by 30 span-roofed vineries, the Ferns being grown in

pots arranged on benches step above step from both sides to the centre, forming massive ridges of luxuriant fronds. They are quite as good as if grown in a "house to themselves," and the Grapes would not be better if there was not a plant in the vinery; in fact the success of the combination is as complete as it is suggestive, and as such we have pleasure in making it more widely known.

PREPARING AND FORCING PLANTS AND BULBS.

THE production of forced flowers during winter months is a branch of gardening that has received an impetus in modern times almost wholly unknown to the gardeners of the past. The demand for cut flowers being so great and still increasing, it becomes imperative that each member of the craft should attain a sound knowledge of their successful production at all seasons, but especially during the winter months. Happily the list of plants suitable for winter and spring forcing is an extensive one, and where suitable accommodation is afforded with a judicious selection, together with some forethought exercised in their previous preparation, constitutes one of the leading or preparatory elements of success, and where duly attended to obviates in a great measure the difficulties experienced when the above conditions are wanting.

Hardy plants for winter and spring forcing should receive all the encouragement possible during the previous summer and autumn until growth is completed and buds well set. If grown in borders they should be lifted and potted early, and set in any convenient place until the approach of severe or frosty weather, when it would be preferable to house them, and introduce to the forcing pit in succession. The treatment described would be applicable in the case of *Rhododendrons* in variety, *Deutzia gracilis* and *D. crenata* fl.-pl., hardy *Azaleas* of the pontica and mollis varieties, *Lilacs*, *Prunus*, &c. All the above-named plants could be better prepared for early forcing if grown in pots during the summer, but would incur more labour, a serious consideration to the majority of already heavily handicapped gardeners of the present times.

The various forms of *Azalea indica* are indispensable for forcing, and can be had in flower at any time during winter if growth is completed and buds set early. The old varieties of the alba type still retain their position, and are a desideratum where *Azaleas* are required in quantity. *Zonal Pelargoniums*, *Cyclamens*, *Primulas* (single and double), *Bouvardias*, *Poinsettias*, &c., are too well known for their useful qualities to need comment. *Poinsettias* require a temperature not lower than 60° and 65° from about the middle of September onwards. During October and later *Bouvardias* should receive the same temperature.

White *Camellias* and *Eucharis* blooms are invaluable during winter and spring. In our own case this year, as on former occasions, they have responded to our call with a faithfulness peculiar to themselves at this dull season. We commenced to gather our *Camellias*, which are planted out, some six weeks before Christmas, and shall continue to do so until April. Our *Eucharis* began to unfold their flowers two weeks previous to the festive season, and will afford us a good supply of blooms during the greater part of February. Our present flowering batch will by that time have produced 1100 blooms. A fact worthy of notice in connection with the *Eucharis* is one bulb having produced a

spike carrying eight blooms, one of which has assumed a semi-double appearance, and is composed of two whorls of petals, five in each, and the same number of stamens. The flower is very interesting from a botanical point of view.

Richardias planted in a suitably prepared piece of ground, or grown in pots plunged during summer months, are very useful when forced into flower during winter, particularly at Christmas. The bulbs and roots suitable for forcing comprise in themselves variety of form and colour sufficient to make an effective display during the dull monotonous days of December and January. The first batch of *Tulips* and *Roman Hyacinths* should be put in boxes containing light soil as early as they can be procured. With bulbs required for forcing, the earlier they are put in the better to insure roots in abundance before taking them from the plunge bed, when if placed in a cold frame secure from frost, the growing points will in a few days assume a fine green colour, and are then ready for the forcing department as required. *Roman Hyacinths*

and *Tulips* we force in boxes, a convenient way when required for cutting or making up. When used for the latter purpose the bulbs can be lifted from the boxes in an equal state of development, and consequently a better effect is obtained than if forced in pots, when some would probably unfold their flowers in advance of the others.

The best *Tulips* for early forcing are *Searlet Due Van Thuyt*, *Queen Victoria*, and *Tournesol*, the latter a beautiful and well known double *Tulip*; *Yellow Pottebakker*, *Gold Prince*, and *Canary Bird*, are, as their names imply, three good yellow kinds; *Couleur Cardinal* and *Keizers Kroon*, two good varieties to succeed the above named; *La Candeur* is a good double white, but will not force early.

To have the *Lily of the Valley* in good condition at Christmas, strong, plump, well ripened crowns, home grown or imported, should be secured. If the crowns were thoroughly ripened and rested they can be had in flower in the space of from three to four weeks if provided with a bottom heat of from 85° to 90°. The crowns should be covered with an inch of cocoa fibre, or with a sprinkle of small leaves, and watered when necessary.

Spiraea japonica and large-flowering *Hyacinths* give better results if brought on gradually after new year time. *Paper White*, *Double Roman*, and other *Narcissus*, double *Daffodils* included, are beautiful when forced gently during January and February. *Spiraea palmata* and *Hydrangea paniculata grandiflora* are two noble plants for late spring forcing, and form a striking contrast of colours.

Gardenias unfold their blooms during February,

March, and April. In the latter month a companion flower in every respect worthy to associate with the *Gardenia* will begin to make its appearance—namely, *Stephanotis*. *Maréchal Neil* and other beautiful *Tea Roses* will be abundant during the months just named. In the ordinary course of nature, all indications of winter should by this time have disappeared, and henceforward there should be no scarcity of *Pelargoniums* (decorative) and the various other flowers in season.—D. SHEAHAN, *Wimbledon*.

HARD WATER v. BOILERS.

I SEE that Mr. Iggulden complains that he is not credited with knowing the elementary rules of the science bearing on this and other subjects. I have re-read his previous letter, and I fail to detect the slightest sign of science in it. His second letter is worse in this respect



Fig. 25.—VINES AND FERNS AT CHILWELL.

than the first, for it displays a very careless method of reading what those who gave him advice have written on the subject. First he complains that the hints given were not practical—what more practical hint or reliable advice could be given him than to substitute rain water for hard water for filling his boilers and pipes? This is the best, cheapest, and most effectual method that could be adopted under the circumstances.

Both "Thinker" and myself alluded to petroleum, but we did not convey the impression that he was to obtain a long array of empty casks to hold 3000 gallons of rain water, but a few full ones, and place the oil in the boiler and pipes. Failing the first this was advised, for it is believed that the oil would cling to the inner surface of the pipes and boiler and prevent the saline matters contained in the hard water from becoming deposited, and thus form a thick incrustation.

Pumping would not be a serious item if he used rain water, for breakdowns would be reduced to a minimum; in fact, they would be unknown from a source from which he has had so many. The labour for pumping and a few cans of water daily would not be a serious item compared with new boilers, patching, and inconvenience which arise therefrom. But your correspondent seems to prefer the hard water and the breakdown in preference to a little pumping occasionally. There certainly would be a little sediment from rain water, but it would not prove serious to the boilers. If the pipes were properly arranged this could be washed out of the boiler from time to time when it was deemed necessary to empty the pipes. However clean the water may be, much rust and sediment appear to collect in the pipes and boiler—such, however, is our experience.—A. W.

MOLYNEUX'S "CHRYSANTHEMUMS AND THEIR CULTIVATION"—A CRITIQUE.

[A paper read at a meeting of the Wakefield Paxton Society by Mr. T. Garnett.]
(Continued from page 133.)

WE will now take a representative collection of Chrysanthemums, and divide it for convenience sake into four sections.

Section 1.—The tall-growing varieties.

Section 2.—The dwarf-growing varieties.

Section 3.—The intermediate growers, comprising or including the early-flowering varieties of the November-flowering sorts.

Section 4.—The late-flowering varieties, which are usually slow growers of luxuriant and succulent habit, as Meg Merrilies, Boule d'Or, Grandiflorum, &c., among the Japanese, and Princess of Teck, Hero of Stoke Newington, Cherub, Eve, &c., amongst the incurved.

Intermediate between the sections are varieties which so merge one section into the other that any definite division is impossible; but as this is the only way which suggests itself to explain what I desire, I shall use these four sections as a sort of "beacon lights" to guide us in the sea of uncertainty which surrounds the subject.

The plants we will suppose to be all grown from sucker cuttings and subjected to the same treatment, and for convenience of illustration we select a plant from each section. The tall variety grows 4 feet before it shows its first bud. The dwarf variety grows only 2 feet before it shows its first bud, but it will occupy it ten days longer to grow its 2 feet of wood than it occupied the tall variety to grow 4 feet. After each variety has shown its first bud they again start into active growth, breaking away into three or more shoots. Each variety will again, if the plant has not reached that stage of ripeness to modify the growth, produce about the same number of leaves and their internodes before they again show the next bud, which is denominated the "crown bud," and Mr. Molyneux makes no mention of any intermediate "crowns;" but hereabouts many varieties will show two and some three successive crowns before showing the real terminal—that is, of course, if each crown bud is removed owing to being too early (excepting the very late ones in section 4, from which we are glad of the opportunity to secure the first crown). If this is different from Mr. Molyneux's experience we can only assume that his climate, with its earlier spring and longer summer, so thoroughly ripens his wood at a very early date, so preparing the plant and settling it down to the real object for which it exists. Let us now revert to our tall variety at the first crown-bud stage. If left to itself it seems undecided whether to keep on growing or to concentrate its energies on the production of a flower. If it is at what is technically called in a ripe condition, the wood consolidated and stored with elaborate secretions, the blooming propensity will preponderate over the growing propensity, and a full, rounded, plump bud, decided in character, will quickly form, which, with the cultivator's help by the removal of side growths, would eventually develop into a high-class flower. On the other hand, if, when the plant arrives at this stage, it is still grossly full of crude sap—it may be from over-feeding, and other well known causes—the bud will be of a very undecided character, and the tendency will be in the direction of further growth. If the side shoots are removed, and the crude sap diverted into the undecided bud, which is the result of this gross growth, the ultimate results are, in some cases, malformed buds, in others hen-and-chicken buds, or it may be a bud of soft consistency, which ultimately is abortive. We supposed our tall variety to have shown its crown bud during the second week in August, but if we know from experience that if we take this "bud" the flower will be too early, what are the results if we discard it? We call upon the plant to make another stage of growth, which occupies from thirty to forty days. Some part of this valuable time the plant ought to be ripening and consolidating growth already made. At this

time of the year the days are rapidly shortening, and the humidity of the atmosphere increasing towards saturation point, growth made under these adverse conditions must result in unsatisfactory flowers. Although we have left the question of height a long way back, it is under these conditions that increased height is injurious.

We now revert to the plant which represents the dwarf section, where we left it at 2 feet high showing its first bud. We stated that it would require ten days more than the tall variety to make its first instalment of growth. If we assume that its second instalment of growth occupies another ten days longer than the tall variety to bring it to the first "crown bud" stage, it arrives at that stage twenty days behind the tall variety, but we sent the tall variety on another journey, which would occupy it from thirty to forty days later before it showed another flower bud. If we know from experience that this bud of the dwarf variety has shown at a suitable time, we take it, and thus get a clear gain of fifteen to twenty days in favour of the dwarf variety, and this at a time and under conditions more suitable in every respect to build up its flowers, while the tall variety was occupying precious time in growing when it ought to have been building up its flower buds.

Coming to section 3 we have intermediate growers and moderately early flowerers, such varieties as M. Tarin, Henri Jacotot, J. Salter, Elaine, Beverleys, &c. These grow quickly and ripen early, and, as a rule, if grown on the non-stopping system they show their first crown bud considerably too early for the flowers to be contemporaneous with the usual display, but there is no difficulty in obtaining a second, and in some cases a third "crown bud," before they show the terminal. What is of importance for us to ascertain how much of this growth is superfluous? Speaking from experience, I have had the highest class flowers from Elaine, J. Salter, Beverley, and others of this type, from plants struck the last week in February, once stopped in the middle of June, and the first crown bud taken, proving, if we get one whole instalment of growth made and thoroughly ripened under the summer conditions, when we have the best climatic influences ripening the wood as it grows. If this is so, why wait until the plants "break" naturally, more particularly if, in our judgment, the plants would not so break before the season was too far advanced? Mr. Molyneux's argument in favour of topping "Eve" and "Mabel Ward" is proof that no mischievous effects accrue from this topping if judiciously done. From my own observations of dwarf plants producing the unaccountably fine flowers to which Mr. Molyneux refers, I have no doubt the secret lies in the fact, that either through the complication of the bud stages of growth, or it may be that the plant may have been topped or broken by some means (which would have the same effect) causing the plant to make another instalment of growth just at the time when circumstances so favoured the new growth that the bud was formed just at the proper time for its full development into a high class flower, at the same time showing that such growth is capable of sufficient strength and storage, to produce as good flowers as is double the height under other circumstances.

The fourth type is represented by Meg Merrilies, Boule d'Or, Golden Dragon, Grandiflorum, &c., in the Japanese, and Princess Teck, Cherub, Eve, &c., in the incurved. This class is well known to growers hereabouts to require special treatment to have them show their buds by the first week in August, and have them in flower by the second week in November; but we get no information from Mr. Molyneux on this point, with the exception of the topping of Eve and Mabel Ward, all else seems to be left to chance. The cuttings are apparently put in without distinction from the 12th of December to the 12th January, and no division of treatment, and no clue as to how the plants should be treated so as to have the buds when they are wanted. We can only come to this conclusion, the climate at Swanmore is so good that these varieties only cause him ordinary trouble in their cultivation.

At the risk of treating the subject rather too fully, I have been at some pains to endeavour to clear up the complexity of this branch of Chrysanthemum culture, I have also dealt with Mr. Molyneux's arguments where they ran counter to what experience has taught me.

In the first place we should determine, if possible, which is the bud that will yield us the best coloured, broadest petaled, best formed, most solid, and highest finished flower. I believe all these properties are perfectly compatible. Out of this question arises another. Mr. Molyneux having only two buds to choose from, appears to lay more stress on the time they are taken. Many Yorkshire growers pin their faith on the second crown on stopped plants. Whichever is taken, we must keep the issue clear that the plants must be in that degree of ripeness so as to be showing the blooming propensity definitely, my opinion being that it is on this latter point the question rests more than it does on any particular bud. However, in cases where it is determined to select the second bud, the topping will require to be done in February, but not in the manner which Mr. Molyneux quotes, "Some growers top the plants when 8 inches high" without apparently any regard to the ugliness or lateness of the sorts (not much wonder some of them not getting ripened), but having regard to their early or late blooming propensities. If the first crown bud is selected the varieties which I mentioned as being the types of the early flowerers, section 3, should be selected; but they need not be propagated before the end of February, then grown on until the middle of May, when the later sorts of the section may be topped, so graduating the operation that the earliest flowerers are not manipulated before the middle of June. In regard to the late bloomers, I have already stated that I prefer to propagate them in November. These varieties are so telling that it will be wise to grow a good proportion of them. Then, so as to have more than one string to his bow, he might

divide the stock of them into two portions, selecting the strongest and earliest to grow on without topping; the other portion may then be topped the last week in April for the latest sorts, so graduating the topplings to early or lateness of sorts as recommended in the other section.

In conclusion, I may just remark that even "Mr. Molyneux's" advice, letting alone mine, will not avail the cultivator a great way on the road if he does not study the peculiarities of the different types, and also bear in mind that any abnormal deviation from a given system of cultivation will directly affect the general results—as, for instance, alteration in the size of the pots; using soil from different sources of supply; the failure of the due supply of either organic or inorganic food; the application of stimulating manure, liquid or solid, without a due appreciation of their strength and effects; abnormal deviations of climatic influences, as very wet summers or very dry ones; add to those the peculiarities of growth must be thoroughly understood by the cultivator before he can feel on firm ground as to any line of reasoning which may be brought to bear on cause and effect so as to be able to arrive at a sound judgment. Our Yorkshire Union of Horticulturists has, in this branch of Chrysanthemum culture, a field of investigation worthy of the efforts of every member, to reduce to order and routine the chaotic uncertainties which beset us on every side. Every branch society, through its members,

the attention of everyone having even a small garden. It is an erect grower, attaining a height of about 2 feet, but commences flowering when a foot or 15 inches; the additional height arising from the growth of the flower spike, which, it will be readily understood, materially lengthens the period of its beauty. The plant is an erect grower, producing oblong lanceolate rugose leaves, light green on both surfaces. The stem also is the same shade of green, rugose and hirsute. Flowers numerous and bright yellow, produced early in the spring.

It should be sown in autumn for blooming in spring; but we would not advise the plants to be kept longer than the third year, as they get woody and unsightly at the bottom, and do not produce such fine spikes of flower as the young seedlings. It may also be increased from cuttings if desired. These plants may be grown in almost any soil, but a calcareous loam suits them best.

GRAVEL ON PLANT STAGES.

PLANTS during the time of their growth like a genial moisture at their roots. When planted out in the open borders it is supplied naturally, although stagnant moisture is ruinous to them; therefore it becomes necessary to drain outside borders where the soil is not naturally porous. So are flower pots carefully drained with crocks to prevent the soil in them becoming sour with the great quantity of water it is found necessary to use. These simple facts are well known. The smaller the quantity of water supplied to a plant the longer will the soil remain sweet. It is highly injurious to plants exposed to the full influence of the sun which have to be watered in the middle of the day, especially when the water used is very much cooler than the soil and roots in the pots. If plants are placed on open stages over hot-water pipes moisture cannot long be retained about them; but if slates or flat tiles are placed on the stages, then a layer of clean shingle spread over them to the depth of 1 inch or so, the drying heat produced by the hot-water pipes will be arrested, and a more lasting moisture can be had by occasionally damping the gravel on the stages. The gravel, too, gives a neat appearance to the house, and there will be no stains visible, as is the case when liquid manure is used on open stages.

Of course, a wooden stage will not last as long covered with gravel as if left bare. Stone and slate stages are decidedly the best, but they require gravel or some similar material spread over them, or the drainage of the pots is impaired. Plants so treated will require less water: thus it will be a saving of labour, and healthier and better rooted plants will be the result. Shingle on stages is largely used I know, but it would be more satisfactory to cultivators if it were more generally used. The floors of plant houses would, I think, be better if left bare under the stages, and not tiled or cemented, except the pathways. Conservatories too should have beds in them if possible, and not be all paved floors with stages.—G. GARNER, *Amberwood Gardens, Hants.*

NEW PLANTS OF 1886.

(Continued from page 118.)

Inf., Inflorescence.—*L.*, Leaves.—*Fl.*, Flowers.—*Fr.*, Fruit.—*H.*, Hardy.—*H.H.*, Half-hardy.—*G.*, Greenhouse.—*S.*, Stove.—*Per.*, Perennial.—*Shr.*, Shrub.—*In.*, Inches.—*Lin.*, Line = One-twelfth of an inch.—*Ft.*, Foot or Feet.—*Diam.*, Diameter.—*Pet.*, Petals.—*Sep.*, Sepals.

N.B.—Unless specified, all Orchids may be considered to be stove epiphytes.

CYPRIPEDIUM LEEANUM, var. *SUPERBUM*. (*G. C.* xxv., p. 168; *Veitch Cat.*, p. 11 and 4, with fig.) A fine variety, with large and showy dorsal sep. marked with radiating rows of purple lines, green and shining at the base.

CYPRIPEDIUM ORPHANUM. (*G. C.* xxvi., p. 166.) L. short and stiff, not marbled. Peduncle very tall. Dorsal sep. triangular, margin light purple, middle nerve purple, the rest green. Lower sep. very short, with ten green nerves. Pet. oblong, deflexed, flat, "white, with a deep purple mid line, mostly olive green, spotted at the base." Lip very broad, purple-brown in front, yellowish at the back, spotted with purple on the base. Garden hybrid.

CYPRIPEDIUM RADISSUM. (*G. C.* xxiv., p. 424.) A hybrid between *C. Lawrenceanum* and *C. Spicerianum*. L. light green, with dark green transverse markings. Dorsal sep. broad and acuminate, white with mauve-purple nerves, which are green at their base, and have a green tint between them. Lower sep. nearly as long as the lip, with light brown lines. Pet. slightly drooping, slightly undulate and ciliate, green with brown midline, and numerous brown spots on the upper margin, the front borders washed with brownish. Lip like that of *C. Lawrenceanum*, brown in front, with a green border. Garden hybrid.

CYPRIPEDIUM SANDERIANUM. (*G. C.* xxv., p. 554, and xxvi., p. 370; *R. p. 7*, t. 3.) A very distinct and striking plant, in the way of *C. caudatum* and *C. Stonei*. Sep. yellowish-green, with purple-brown nerves. Pet. 1-1½ ft. long, linear, twisted, purple-brown fading into yellowish, spotted and barred with purple-brown towards the base, where there are some retrorse purple bristles. Lip much like that of *C. Stonei* in shape, but of a greenish-bronze colour. Malay Archipelago.

CYPRIPEDIUM SEDENI, var. *CANDIDULUM*. (*Veitch Cat.*, p. 11, and 4 with fig.) A hybrid between *C. longifolium* and *C. Schlimii*, var. *albiflorum*. Sep. and pet. ivory-white, the sep. with pale yellowish-green nerves, the pet. tinted with rose towards the tips. Lip pale rose, the infolded lobes white dotted with crimson. Garden hybrid.

CYPRIPEDIUM SELLIGERUM, var. *MAJUS*. (*L.*, pl. 22.) A variety with larger fl. A fine and handsome plant.



Fig. 26.—*Alyssum Wierzbickii*.

could collate and tabulate facts from which valuable deductions could be made, with discussion limited to one phase of the subject at a time, of course with due regard to the bearings of one question on the others; something on the principle which a great English thinker (Huxley) lays down when he wrote, "That we must learn what is true in order to do what is right, and there is a path which leads to truth so surely, that anyone who will follow it must need reach the goal, whether his capacity be small or great, and there is one golden rule by which a man may always find this path and keep him from straying when he has found it. This golden rule is, Give assent to no proposition but those the truth of which is so clear that they cannot be doubted." This golden rule is applicable to the cultivation of all plants, but perhaps more closely does it apply to this branch of the Chrysanthemum culture than to any other, because for its successful cultivation there is no other plant under the gardener's care which demands from him the discrimination of cause and effect in a greater degree. On the other hand, the reward for labour and time is such as to amply repay in results proportionate to the exercise of judgment.

ALYSSUM WIERZBICKII.

THIS plant belongs to a small genus of Crucifers, one species, *A. saxatile*, being familiar to gardeners. The present species is deserving

CYPRIPEDIUM THIBAUTIANUM. (*G. C. xxv.*, p. 104.) A hybrid between *C. Harrisianum* and *C. insigne*, var. *Maulei*. The sep. are green, with rows of brown spots; the dorsal one with a white border. Pet. shining brown, the upper part being light green, with small brown spots. Lip pale yellowish, with the front part brown. Garden hybrid.

CYPRIPEDIUM WILLIAMSIANUM. (*Williams' Cat.*, p. 24.) A large flowered distinct form. The l. are distinctly tessellated. Dorsal sep. very large, white, with a blackish-brown central bar and green nerves; pet. oblong ligulate acute, ciliate on both margins, reddish-brown on the upper side of the dark brown median line, and white, with a coppery tint on the lower side, and dotted with black near the base; lip yellowish beneath, light brown above, with an ochreous border. Garden hybrid.

CYPRIPEDIUM WINNIANUM. (*G. C. xxv.*, p. 362.) A hybrid between *C. Druryi* and *C. villosum*. L. similar to that of *C. villosum*. Peduncle and ovary hairy. Dorsal sep. oblong acute, not broad, whitish-yellow, with the centre dark purple-brown, lower sep. pale ochre. Pet. reddish on the upper side of the brown midline, yellow on the lower side. Lip as in *C. villosum*.

CYRTOMIUM CARYOTIDIUM, var. *ATTENUATUM.* (*G. C. xxv.*, p. 787.) Filices. A variety with elegantly caudate pinnæ. India.

CYRTOPEA REGNIERI. (*G. C. xxvi.*, p. 294.) Orchideæ. A fine and handsome Orchid, with oblanceolate l., and a raceme of large yellow fl. on a tall peduncle arising from the side of the leafy shoot. Sep. and pet. falcate-lanceolate acute. Lip oblong lanceolate, with a wide blunt angle on each side at the middle. Spur conical. Cochinchina.

DAHLIA PINNATA. (*Gf.* 1886, p. 211.) Compositæ. Here considered to be an older name for *D. variabilis*.

DAVALLIA RETUSA (*Veitch Cat.*, p. 11). Filices. S. An elegant Fern of spreading habit, suitable for basket cultivation, with deltoid tripinnate fronds, having pale reddish stipes and rachides, and light green rhomboidal or cuneate pinnules. Sumatra.

DENDROBIUM LEUCOPTERUM (*G. C. xxv.*, p. 483). Orchideæ. A beautiful hybrid between *D. endocharis* and *D. nobile*, raised from the same seed pod as *D. enosmum* (see *F. B.* for 1886, p. 90), but the fl. are larger than in that, with white sep. and pet., and the disc of the lip of a rich purple. Garden hybrid.

DENDROBIUM LOWII, var. *PLEIOTRICHUM* (*G. C. xxiv.*, p. 424). A variety wanting the red lines on the lip, and having short hairs on the basal lobes.

DENDROBIUM MACROPHYLLUM var. *ORGANTEUM* (*R. H.*, 1886, p. 348). A beautiful form with large solitary or geminate fl., 4 inches in expanse, the sep. and pet. of a rosy mauve tinted with lilac, the eyed and fringed lip being rose-purple. Manila.

DENDROBIUM MELANOPHTHALMUM (*G. C. xxv.*, page 426). Stems nodose. Fl. like those of *D. crassinode* var. *Barbicanum*, but with two dark eye-spots. Supposed to be a natural hybrid between *D. Warianum* and *D. crassinode*.

DENDROBIUM PARTHENIUM. (*G. C. xxiv.*, p. 489; *Bull. Cat.*, p. 8.) A tall growing plant with thin stems; l. $1\frac{1}{2}$ in. long; racemes 2-flowered; fl. white with a purple blotch at the base of the lip. Sep. lanceolate-triangular with obscure keels. Pet. oblong, obtuse, longer than the sep. Borneo.

DENDROBIUM PERCANTHUM. (*G. C. xxvi.*, p. 70; *Cat. C. C. d'H.*, p. 3.) A distinct and remarkable species, with strong shining stems, and numerous racemes of pale yellow fl. with a white lip having the mid lobe and borders of the upper part yellow, and brown and purple keels. Sep. triangular. Chin blunt. Pet. linear, longer than the sep., turned backwards. Lip ligulate trifid at the apex, side lobes blunt-rhomboid, mid lobe ovate, apiculate. Moluccas.

DENDROBIUM POGONIATES. (*G. C. xxvi.*, p. 199.) A miniature plant of botanical interest, with fusiform stems a ft. high, linear-lanceolate l., and small yellowish fl. with an orange lip. The spur is cylindric retuse; sep. lanceolate acute; pet. cuneate-oblong; lip with a long midlobe, bearded. North Borneo.

DENDROBIUM STRATIOTES. (*G. C. xxv.*, p. 266, and xxvi., p. 176 and 177, f. 34; *Ill. H.* pl. 602; *L.*, pl. 43; *Cat. C. C. d'H.*, p. 4.) A remarkable and handsome species, with long fusiform bulbs, rather short oblong l., and numerous racemes of odd-looking fl. of good size. Sep. lanceolate acuminate, rolled back, ivory white. Pet. longer than the sep., narrow linear, twisted, quite erect, pale green. Lip cream-coloured with violet veins, 3-lobed, front lobe ovate acute. Sunda Isles.

DENDROBIUM STREBLOCERAS. (*G. C. xxv.*, p. 266; *Cat. C. C. d'H.*, p. 4.) Allied to *D. stratiotes*, but with smaller fl. The sep. and pet. are similar, chin narrower, the side lobes of the lip nearly square, obtuse angled, the isthmus well developed, and the front lobe nearly triangular, there are five keels on the median area. Sunda Isles.

DENDROBIUM WILLIAMSIANUM. (*G. C. xxvi.*, p. 173, f. 32, and p. 199.) A very beautiful plant, producing its racemes of large fl. from the upper part of the slender bulbs, each raceme has about half a dozen fl. of an ivory white colour, with a purple lip, the disk of the pet. also washed with light purple. The dorsal sep. and pet. are broadly oblong, apiculate; lateral sep. triangular; the lip has an angulate chin, it stands upright, is adpressed to the column, and has a roundish limb. New Guinea.

DIANTHERA BULLATA. (*Ill. H.* pl. 589.) Acanthaceæ. S. foliage plant of dwarf habit, with opposite, elliptic, acute, strongly bullate, blackish-green l., purplish beneath; and slender racemes of small white fl., fasciated in the axils of minute, opposite bracts. Corolla 2 lin. long, puberulous, bilabiate, front lobe 3-parted. Stamens 2, exserted; staminodia 2. Borneo.

DICKSONIA LATHAMI. (*G. C. xxiv.*, p. 584.) Filices. S. evergreen Tree Fern of hybrid origin. It is a noble plant, with tripinnate, narrow-oblong, coriaceous, dark green fronds, 14-15 ft. long; pinnæ sessile oblong-lanceolate acuminate, $1\frac{1}{2}$ to 2 ft. long, 6-8 in. broad, with close set, sessile, lanceolate, acute pinnules; pinnulets oblong, obtuse, more or less lobed or crenulate. Supposed to be a hybrid between *D. antarctica* and *D. arborescens*. Garden hybrid.

DIMORPHANTHUS MANDSHURICUS, var. *FOLIIS VARIEGATIS.* (*Ill. H.*, t. 619.) Araliaceæ. H. shr. or tree, very elegant and ornamental, with variegated foliage. The large bipinnate l. having 4-5 pair of pinnæ each with 4-6 pair of elliptic ovate leaflets and one terminal one, all dark green, broadly margined with cream-white. Amur, Mandshuria.

DISA ATROPURPUREA. (*G. C. xxv.*, p. 532; *B. M.*, t. 6891.) Orchideæ. G. terrestrial Orchid. A beautiful little plant, with linear grass-like l., and

solitary rich purple-lake fl., on slender peduncles 3 to 4 in. high. Dorsal sep. hooded with a very short knob-like spur; lateral sep. elliptic-lanceolate acute. Pet. eared at base, bifid at apex. Lip with a distinct stalk $\frac{1}{2}$ in. long, and a cordate acuminate blade, with a wavy margin, and 2-3 teeth on each side. S. Africa.

DRACÆNA BARTELI. (*R. H.* 1886, p. 178.) Liliaceæ. S. shr. A beautiful variety, having the elliptic l. of a reddish-bronze, bordered with red in the adult state, and of a brilliant red, flaked with brownish in the young state. Garden variety.

ECHINOCACTUS JOADII. (*B. M.*, t. 6367.) Cactaceæ. G. succulent. A beautiful plant, with a globose many-ribbed stem, brownish spines, and handsome bright yellow fl. 2 in. in diam. Outer spines 15 to 18, radiæ, inner ones 6 to 7, longer and stouter, directed outwards. Calyx tube with tufts of slender spines, mixed with curly hairs. Petals numerous, narrow oblong acute. Stigmas crimson. Uruguay?

ECHINOCACTUS SENILIS. (*Gf.*, t. 1230, f. A.) G. succulent, with a stout cylindric, 16 to 18-ribbed stem, having tufts of numerous hair-like spines, curving upwards; and light pink fl. $1\frac{1}{2}$ in. long, and 1 in. in diam., with a scaly cylindric tube. Chili.

EMECON CHIONANTHA. (*B. M.*, t. 6371.) Papaveraceæ. H. H. A beautiful and interesting per. herb. L. all radical, long stalked, with a roundish-cordate, sinuate or coarsely crenate blade 3 to 4 in. long, and nearly as broad. Fl. stem laxly branched. Fl. Poppy-like, $1\frac{1}{2}$ to 2 in. in expanse, white, with yellow stamens. China.

(To be continued.)



KITCHEN GARDEN.

SPRING SOWN ONIONS.—We have sown these at all times, from the first week in January until the end of March, and our favourite time for sowing is during the first week in March. If the soil was in good condition about the last week in February we would sow then, but experience has led us to avoid very early sowing, and the early March sowings will produce splendid crops. Rich soil and a sunny position will always produce large finely developed bulbs, but the maggot should always be guarded against, and a quantity of gaslime, salt, lime, or soot should be forked or dug into the soil before sowing the seed. We do not limit any quantity, but apply these ingredients according to the usual abundance of maggots. Sometimes a mere sprinkling will do, and in other cases a good dressing is required. We are especially in favour of soot in Onion soil, and after dressing and manuring the surface should be rather fine, the drills may then be opened after each other throughout the whole of the Onion piece. Making beds is only labour thrown away, as it does not produce better results. The rows should be 1 foot apart, and the seed should be placed 2 inches below the surface. Where the soil is heavy try and use a little old potting soil to cover the seed, and when this has been placed in the drills cover with the soil that was drawn out. If no soil can be secured from the shed sand will do, and as soon as the surface becomes so dry that the soil will not stick to the feet roll the land several times. This will make the soil very firm, and it is astonishing how early the young plants begin to form bulbs in firm soil.

PEAS.—Those being forwarded under glass should be kept in cool quarters to prevent their being drawn, and also to harden them ready for planting, as if the weather is favourable they may be planted out early in March, but care should be taken that they are not fully exposed until they can bear it, as if placed out when too tender they will be severely checked and the labour of getting them up early will be thrown away, as checked plants are never satisfactory. Large quantities of main crop varieties should now be sown. Give them a rich deep soil, do not crowd the rows, and heavy crops will be the result. We have sometimes sown Peas in poor soil and trusted to liquid manure to finish off the crop, but this plan was never very successful and not equal to that secured by sowing in rich soil at first. Those sown in the open in December are very promising, and all above ground should have a little soil drawn to each side of the row, then staking them. Place small twigs amongst the plants first to bear them up, and place the large stakes along the sides afterwards. It is not very often that Peas are fruited under glass, but where they are being tried do not keep them shut up too closely, as this will cause mildew. Keep them near the glass, admit air on all favourable opportunities, and give them weak liquid manure twice weekly. Where early Peas have failed or were not sown some time ago do not sow in main crop Peas now, but sow the earliest varieties. It is astonishing how fast these grow when placed in during March and onwards.

RHUBARB.—The crowns of this are expanding, and where any dividing or transplanting has to be done they should have attention at once. As a rule there is too much Rhubarb grown in gardens; half the quantity would often be sufficient. But where the stock is deficient increase it by taking up the old roots and dividing them into two or three pieces. Replant in good soil, and roots which are being left alone may have a little manure forked in round them.

JERUSALEM ARTICHOKE.—These are invaluable to us, as they are not only used freely in soup, but they are cooked as a vegetable and are

a most acceptable change two or three times a week during the winter. Very rich soil causes them to make too much top growth, and we prefer to grow them in soil that is slightly poor. The whole of the roots should be dug now, the best stored for use, and the smaller replanted. They are put in like Potatoes, but the rows should be kept 3 feet apart and the sets 18 inches asunder.

BROAD BEANS.—The earliest are well through the soil, and a second sowing should be made of Seville Long Pod.

HORN CARROTS.—The first sowing of these may be made in the open ground. They should be sown on a warm border where the soil is friable and free from maggots. Keep the rows 15 inches apart and do not sow very thick. Do not cover the seed more than an inch deep, and cover them carefully. We sow a long border of them, and have lately had a quantity of sandy leaf soil forked into it. The other day we cleaned out a Cucumber pit flue, and the whole of the material that came from it was placed on the Carrot border. This has been spread on the surface and Dutch-hoed in, and we will guarantee that no worms will be found in that border for the next twelve months at least. Early Carrots in frames are becoming crowded and should be freely thinned out before they have injured each other by being too close. We are very particular in avoiding this, as when the plants are forced into a long stem before being thinned they fall over afterwards and receive a check from which they do not readily recover.

KIDNEY BEANS.—Everyone who has a glass house or pit may sow Dwarf Beans, as they will grow freely in time to come and the fruit will be most acceptable in April or May. The Ne Plus Ultra fruits most freely, and it is astonishing the quantity of pods that may be gathered from two or three dozen pots. Sow six, eight, or ten seeds in a 3-inch pot, use good soil, place them in a little warmth, and a fine batch of young plants will soon appear. Give plants bearing pods abundance of liquid manure. Do not syringe those in flower.

HERBS.—Mint extends rapidly, therefore cut it well in with a spade and dig up the surplus part. Place a surface dressing of manure over that which remains. Sage plants which were raised from seed last year should be lifted and replanted, allowing 18 inches from row to row and 1 foot from plant to plant. Sow a pinch of Sweet Basil seed in a 6-inch pot. It requires a little heat to germinate, and must be grown under glass until the summer time.

GARLIC, SHALLOTS, AND POTATO ONIONS.—The whole of these may be planted. A small bed of Garlic will give a good supply, but Shallots may be more extensively planted. The large varieties of these are showy, but in quality they are not quite so good as the old fashioned sort, and it is this which forms the bulk of our crop. The roots are planted in rows 1 foot apart, with a distance of 6 inches between the bulbs, and they are simply planted by being pushed into the surface of the ground until they are almost hidden in the soil. Potato Onions are treated in the same way, only they are kept a few inches further apart as the bulbs are larger.

HORSERADISH.—Where this is degenerating lift the whole of it, select the thickest and straightest roots and dibble them into deep fresh ground at a distance of 20 inches by 15 inches. This crop is generally neglected and consigned to some out-of-the-way corner, but it is in frequent demand in the kitchen, and roots about as thick as one's wrist are always acceptable.

FRUIT FORCING.

VINES.—*Early Houses.*—Early Grapes approaching the stoning process will require careful treatment, ventilating early in the day, affording a little air at 70°, increasing the heat to 85° with sun, closing at 80°, and if an advance follow to 85° or 90° all the better. Avoid cold draughts—they cause rust more than anything else; and if red spider appear paint the return pipes with sulphur, keeping the evaporation troughs replenished with guano water or liquid manure, and water the inside border with water at 80°.

Fruiting Vines in Pots.—These require generous treatment, such as liquid manure 10° warmer than the house in which they are growing, affording it also to the plunging material where the roots are allowed to find their way from the bottom of the pots and over the rims, encouraging the Vines to make plenty of foliage, as close pinching only restricts the root growth, there being nothing like plenty of feeders to secure well swelled berries.

Succession Houses.—Disbud, and when the bunches show increase the temperature to 55° to 60° at night, 65° by day, rising to 70° or 75° from sun heat, maintaining a moist genial atmosphere. Tying and stopping will need to be attended to as required, allowing all the foliage that can have exposure to light and air.

Late Houses.—If late Vines are not yet cleared of fruit it should be done at once, pruning the Vines, applying styptic or knotting to the cuts, dressing the Vines and borders, keeping the house as cool as possible, so as to afford a period of rest. Examine Grapes in rooms, as one mouldy berry soon destroys a bunch; the more equable the temperature the better they will keep. The room being dry and frost-proof they will keep plump. Muscats and Lady Downe's, and other late varieties, may now be encouraged to move, as the fruit keeps much better when the Vines break early in March, time being allowed for the thorough ripening of the Grapes before the cold and sunless weather. The inside borders must be brought into a thoroughly moist state by the application of water at a temperature of 85° or 90°. Little, if any, advantage is derived by Vines started now from covering the outside borders with fermenting materials, but a protection of litter or other material should be provided to prevent chill from cold rains or snow.

PEACHES AND NECTARINES.—*Earliest House.*—Tying and regulating the young growths will be necessary as they advance, in doing which allow plenty of room for the shoots swelling. Avoid overcrowding the foliage, every leaf should have light and air. Those shoots retained to attract the sap to the fruit must be kept closely pinched to one leaf after having been previously stopped. Be not deceived by the syringing—i.e., making the surface of the border look wet whilst the soil beneath may be too dry, but give good waterings, and if the trees are weakly apply liquid manure. If the syringings morning and afternoon fail to keep red spider in check employ softsoap, 2 ozs. to the gallon of water. The temperature should be maintained at 60° to 65° by artificial means, a fall to 55° on cold mornings being much better for the trees than hard firing, which only induces attenuated growth.

Second Early House.—The trees will now want attention in disbudding, doing it gradually, removing the strongest and ill-placed, thinning the fruit where too thickly set by first removing the smallest and those on the under side of the branches, but avoid wholesale thinning and disbudding. The temperature should be kept at 55° at night in cold weather, and a little warmer, or 60°, in mild, but a comparatively low night temperature is preferable to a high one; 65° by day with an advance to 70° or 75° from sun heat, and free ventilation from 65°. Syringing must be practised morning and afternoon.

Third Succession House.—Trees started early in the month will be in flower, and must have attention in fertilising the flowers by shaking the trellis or dusting them with a camel-hair brush. Syringing must cease whilst the trees are in flower, but the floor should be sprinkled morning and afternoon, avoiding cold currents of air, but ventilating freely. Maintain a temperature of 50° at night, 55° by day by artificial means, advancing to 65° or more with sun, but not without full ventilation.

House to Afford Fruit in Late July or Early August.—This should be closed early in March, syringing twice a day until the buds show colour, when it must cease. Maintain a temperature of 50° by day, and 40° to 45° at night, advancing to 65° with sun. Make a careful examination of the border, and if at all dry afford a thorough supply of water. If there is a very plentiful supply of blossom remove that at the back or under side of the trellis by drawing the hand the reverse way of the growth.

Late Houses.—Many are unheated, which is a mistake, but a greater still is having the roof lights fixed. The roof lights of our late house are still off, and not a bud has started, whilst trees against a south wall have the buds considerably advanced. Ventilate freely, merely excluding frost. Heat is essential in cold localities, as the blossom is not safe from severe spring frosts, and the fruit does not ripen perfectly if the late summer be cold and sunless. A gentle heat during flowering does much towards ensuring a good set, and in autumn artificial heat ripens the fruit and wood, plumping the buds wonderfully. See that the borders in all the houses do not lack water, but afford it liberally to all where the trees are in growth. Outside borders in all cases should be protected with litter.

PINES.—At the commencement of March a batch of suckers should be started, which are intended to afford a supply of ripe fruit from about December onward through the winter and early summer months. The pots most suitable are 5 to 7 inches in diameter, they being perfectly clean and dry, draining them with about an inch of crocks of moderate size, employing fibrous loam torn up moderately small, rejecting the dust, ramming it firmly about the base of the suckers, and plunging in a bottom heat of 90° to 95° at the base of the pots. No water should be applied until new roots are formed, which will take ten days to a fortnight. A close moist pit is the most suitable place for these plants, where they can be near the glass; they will not need syringing except the weather be very bright, when slight shading from midday sun and a light syringing through a fine rose will be necessary about twice a week. The temperature should be kept at 55° to 65° by artificial means. Any plants in an unsatisfactory state should be shaken out, disrooted, and treated as advised for the suckers. It is advisable to leave the small suckers upon the shoots until the end of May, which is a good time for another start. Shoots, when the leaves are cut off, should be inserted closely together in any pit having a moderate top and bottom heat, where light and air can be obtained, so as to insure a sturdy sucker.

Plants started in December for early summer fruiting will be showing fruit, it being desirable to advance the ripening as much as possible, the temperature being sustained at 65° to 70° by artificial means, with 5° to 10° more under favourable conditions. If the plants cannot be afforded a structure to themselves, which is advisable, they should be placed at the hottest end of the fruiting house. With the fruit advancing the plants will need more water at the roots, going over the stock once a week. Recently started plants must be kept at 65° by night and 70° by day, keeping the atmosphere for these plants and fruiters generally moist, watering as required with weak guano or other form of liquid manure.

PLANT HOUSES.

Hydrangea.—The earliest plants in 5-inch pots will have heads of flowers 2 inches across, and should now be grown in a temperature of 60° close to the glass in a light position to prevent their being drawn too tall. In this stage they must not suffer by an insufficient supply of water. A little artificial manure applied to the surface of the soil once a fortnight will assist them wonderfully in the development of heads of large size. Later batches must not be kept too warm until their flower

buds are visible, but directly they can be seen the temperature named may be given them. The remainder of the stock in 3-inch pots, in which they were rooted in autumn, may now be placed into 5-inch pots and given a temperature of 45° to 50°, unless it is desirable to keep a hatch very late, and in this case they may still be kept in cold frames. A few plants of *H. paniculata grandiflora* may now be introduced into a temperature of 45° to start them. This variety must be brought forward steadily, or they will fail to flower freely and only produce small instead of large heads.

Bouvardias.—Plants that have been kept dry to ripen and harden them since they flowered may now be pruned closely back and started again into growth in a temperature of 50°. Unless extra sized plants are required the old stock need not be retained, but where a succession of flowers for cutting is in demand they will be found most useful, as they come into flower earlier than young stock. Young plants in quantity may now be raised by cutting strong roots from some of the old plants into lengths of about half an inch. Two or three portions of root should be placed in sandy soil in 2-inch pots. The pots may be plunged in boxes and placed in brisk moist heat, and in a very short time young growths will issue through the soil. By placing them in pots at the commencement no check is given the young plant, which is the case when the roots are inserted in pans and boxes, and then potting after they have formed fibry roots. This is a much readier and quicker way of raising a stock than by means of cuttings. When the small pots are full of roots only one potting afterwards into 5-inch pots will be needed. The old plants when they have commenced growth should be shaken out and placed into a smaller pot.

Standard Pelargoniums.—If a few standards are required for flowering next winter healthy cuttings should be inserted singly in 2-inch pots at once. They will root quickly on a shelf in a temperature of 60°. For this purpose free-flowering varieties, such as *Vesuvius*, should be selected. If stems 3 to 4 feet high are required strong growers may be selected, and these varieties grafted on to the top of them. The young, after they are rooted, should be grown for some time in heat, and potted as they require more root room. All lateral growths should be removed as they appear until the length of stem described has been attained. Plants with stems varying in height from 18 inches to 3 feet can be used very effectively in groups and other ornamental arrangements.

Callas (*Richardia aethiopica*).—For conservatory, room—in fact, all kinds of decoration, these easily grown plants can be used with great effect. Where it is necessary to increase the stock considerably all the small suckers that are springing from the base should be taken off and potted singly in 2-inch pots. These will soon become established in a temperature of 55° to 60°, and afterwards may be grown on in Peach houses or vineries until they can be placed in cold frames and hardened for planting out. Up to this stage they will need 5-inch pots, and will grow rapidly and strongly after they are planted out in June. These young plants grow stronger and produce much larger spathes than those that are divided and planted out after flowering.

Lilium Harrisii.—The earliest plants of this variety and *L. longiflorum* will be growing rapidly, but care must be taken not to force them on too rapidly, or they will become blind. They should be kept close to the glass, and in a temperature that does not exceed 50° at night. Later batches will be moving freely in cold frames, and if there is any fear of frost touching them they must be moved without delay to some structure where frost can be excluded. A slight frost to the tender stems and foliage of these plants will practically ruin them for flowering moderately early in the season. The same remarks apply to *L. candidum*. The earliest should now be 3 feet high; but they are hardier, and a slight frost in frames will do them no harm; but if it can be avoided all the better.

Freesias.—Plants that have been advancing in cold frames should be removed to a position in a cold house, where they will be safe from frost. They should be arranged on a shelf close to the glass, where a good circulation of air is given daily whenever the weather allows of this being done. A close atmosphere will ruin them: the foliage will become drawn and the plants fail to flower. But if grown cool they will have sturdy foliage, and in due time flower freely.

Ixias and Sparaxis.—When well grown these bulbous plants are charming in pots, but any attempt to hurry them will end in disaster, for their foliage will draw up weakly, and poorly coloured flowers will result. They may be removed from frames to more genial quarters, where a night temperature of 45° to 50° can be maintained. They should be kept close to the glass, and a circulation of air given on all favourable occasions. Under these conditions they will grow strongly and flower freely. They must not be allowed to suffer by an insufficient supply of water, or the tips of the foliage will become brown.

THE BEE-KEEPER.

PRACTICAL BEE-KEEPING.

No. 4.

It is necessary before entering into details of practical management to give a few simple facts about the queen, the drone, and the worker.

The queen, a perfect female, the mother of all the bees, is produced in a cell of different form and size to that from which the drone or worker issues. Queen cells are elongated something like an acorn in shape, especially like the cup of an acorn when they are only half built. These cells are generally formed along the bottom edges of the comb, and from their curious shape are at once easily detected. The average time elapsing between the egg-depositing and the issue of a perfect virgin queen is fifteen days. About seven days from birth the maiden queen leaves the hive for the purpose of mating with the drone. Whether when the union has once been consummated the queen ever again leaves the hive for a like purpose has not yet been clearly proved, but that when once she has settled down to the duty of ovidepositing she never again meets the drone is very generally admitted. The fertilisation of the queen may be retarded for many days, and if the queen is reared at the season of the year when drones have been destroyed she will remain a maiden and produce drones only. A queen usually lives three years, occasionally four, but after the second year most queens are past their prime, and steps should be taken, unless in exceptional cases, to supersede them. One fertile queen alone reigns in every hive, except when the state of the stock is abnormal. Instances have, it is true, been adduced of an old worn-out queen being allowed to live out her days in peace after she has been superseded by the bees raising a successor, but such cases are quite exceptional. A good queen when her surroundings are favourable lays from 2000 to 3000 eggs a day during the height of the season. In shape she is longer, and in her form and movements more graceful than either the drone or worker. Her wings lie closer and are also smaller. If by accident a stock is deprived of its queen the workers have the power, which they at once exercise, to raise another queen, provided that there is a worker egg or young worker larva in the hive; this must always be remembered. The queen rarely uses her sting. The larva which is to become a queen is nourished by the workers on a different kind of food from that given to the ordinary brood, so it is supposed at least. This food is called popularly "royal jelly."

Fertile workers are bees which have a limited power of reproduction. Their eggs produce drones only. It is most difficult to destroy these fertile workers, as by their similarity of form to the common worker they escape observation. It has been supposed that these fertile workers issue from cells in juxtaposition to royal cells. A portion of the special food given to the larvæ which are to produce queens having fallen accidentally into the adjoining cells, and so endowing the bees issuing from such cells with more sex perfection than is attained to by the common worker bees when reared under normal conditions.

The drones are the largest, heaviest, and most masculine in appearance of all the bees. Their functions are to live well and fertilise the young queens. They also, I must with others contend, assist in keeping up the temperature of the hive, and therefore are not an unmitigated evil even if there are no queens which require fertilisation. From the time the egg is deposited in the cell to the day when the perfect drone appears is twenty-five days. Drones can at once be detected by the merest novice on a fine warm summer's morning, when their deep lazy hum makes the air resound with repeated invitations to the young queens to come forth to their bridal. If a stock is left to its own devices many drones are usually raised; but when we consider that the union takes place in mid-

air—especially if we believe that the queen and drones have, and exercise a choice—it will appear at once the only plan by which fertilisation may, with some degree of certainty, be assured. At the end of the season every drone is slain; a sad ending to a happy life! The smallest inhabitant of the hive is the worker. From the deposit of the egg to the issue of the perfect insect twenty-one days elapse. In its childhood days—for the first fourteen days of existence as a perfect bee—the worker acts as a nurse to the brood, but from the fourteenth day a life of endless toil and labour begins, only to cease at death or when the approach of winter forbids more labour. The workers collect all the honey and the pollen; they build the cells and form the perfect comb; they fight the robber and clean the hive; the whole internal arrangement of the hive is under their care. They live in the height of the season at most eight weeks, but when the weather forbids outside labour they exist for as many months or even more. The worker is an imperfect female. One curious fact may be noticed in passing on, and that is this:—The most perfect bee is produced in the shortest time; the one bee most necessary to the well being of the stock is reared most quickly, a special provision against destruction. Common comb is ordinarily composed of drone and worker cells; queen cells are not always present, although remains of them may generally be found; the smallest cell is the worker, the largest the queen, the drone cell being between these two in size. Worker and drone cells are six-sided. Five worker cells may, speaking broadly, be said to measure 1 inch, four drone cells measuring the same. Wax is produced by secretion in the form of minute scales forming in the wax pockets of the workers. Very false ideas are, I believe, prevalent as to the weight of honey necessary to produce a pound of wax; it need only be said at present that 20 lbs. of honey is certainly not necessary to produce one-twentieth of its weight in wax.

Pollen and propolis have only now to be considered, and a very brief notice will be necessary. Pollen is mixed with honey and fed to the brood, and is also present in all comb. It is gathered from various flowers and blossoms, and is carried in pockets on the hind legs of the bees after being rolled into pellets. In America very eminent writers contend that pollen is a very serious evil in a hive during winter, causing disease and sickness and consequent destruction to the bees. But as pollen is present I believe, to some extent at least, in honey, it seems difficult to know how, unless syrup alone is given for winter food, it can be ejected from the hive.

Propolis is collected from various trees. It is a glutinous substance, and is used for stopping all the crevices in the hive, for varnishing the comb, and so hardening the cells that they may be the better able to withstand the wear and tear to which they are constantly subjected. If any desire to study more deeply the life history of bees a delightful opportunity lies before them, and if after reading "Bees and Bee-keeping," by Mr. F. Cheshire, they are unable to accept all that the author lays down they will at least have learned much that was unknown, and experienced a great and lasting pleasure. With such a work opened before the reader it is unnecessary for me to enter more deeply into a subject which has already been treated by a "master hand." For those who do not care to read so great a work, for those who have no opportunity to peruse these volumes, the above brief account is written in the belief that it will convey sufficient knowledge to enable the practical bee-keeper to manage his bees with profit.—FELIX.

FOREIGN RACES OF BEES.

"NOTTS BEE-KEEPER" wishes "to get some honey facts." These I have repeatedly given, and in every instance the foreign races excelled the blacks. If he has not read the articles referred to or disbelieves them I will produce further proof in support of my statements. To enter into any discussion on the merits of the different races, without being in possession of all facts connected with their management, would be a waste of time. He accuses me of giving no evidence, which is quite contrary to the facts, and if your correspondent turns to the numbers containing the report of my bees at the Heather last autumn he will find an accurate account of as fair a trial of bees as ever took place, where everything was against the foreigners, but which gathered the most honey, proving their superiority over the native blacks. I am sceptical about bee-keepers maintaining they have the pure race of black bees while they are keeping one or more varieties. May "N. B. K.'s" black bees not be simply crosses? or if not how does he manage to keep them pure? Five miles distant from each other will not do it. At all events, those who cannot see the difference between the prolificness of the Ligurian and the black bee must be blind indeed. The former on an average will breed a third more bees in the season than the latter, while both the Cyprian and Syrians seem to excel the Ligurian. How often has it been repeated that comparisons cannot be made with bees standing at distances far apart from each other? They must stand together, and be in every respect equally managed. For example, if I have 10 or 20 lbs. of honey from each stock, I have learned that those in more favourable localities have from 20 to 60 lbs. from each hive. A few years since an area of about five miles long by two miles broad was almost wholly under cultivation, and my bees stood in the centre of that vast field of grain; but things are much better again, thanks to the agricultural depression! but even with more pasture my district is far from being a good one for bees, being surrounded with public walks and coal pits, is at all times very smoky and otherwise disagreeable. Being as it were below the snow line, owing to the radiation from Glasgow and other towns with which we are nearly in a level, we are not troubled with the same amount of snow during winter, but that advantage does not compensate for the loss otherwise during summer.

"What was the most he took from a foreign stock last season?" is a question I readily answer. Exactly 110 lbs., and it was far from being a good season either; but the bees were crossed Cyprians. Another stock of Syrians gave me 60 lbs. surplus and increased to six stocks. Another crossed Cyprian gave me 100 lbs., but I took all it had. Now, this was being obtained when other bees in the neighbourhood believed to be blacks gave nothing.

The next question is, "What is the most he has ever taken from a foreign stock?" Well, if he turns to the Journal for 1884 he will find an account of a Cyprian stock that had swarmed during summer twice. I exhibited it at Edinburgh at the Caledonian Apiarian Society's Show. It weighed then 100 lbs., having risen in weight at the Show at least 10 lbs., and had then about 20 lbs. of super comb, which was all removed before it was sent to the moors, where, from Wednesday afternoon 4 P.M. till the next Monday at 9 A.M., it had completely filled and sealed nine supers weighing 4 lbs. each, 36 lbs. of honeycomb altogether. The first swarm from it did equally well, and I gave away the second swarm's queen to a neighbour, whose bees have done extra well ever since.

The most I ever took from a single stock of bees at one lift was from a hive of Ligurians in 1876, which amounted in all to 160 lbs., leaving the stock hive nearly 100 lbs. I did not move this hive to the Heather or it might have given me a good deal more. In 1875, from the Clover harvest, the gatherings of six stocks of Ligurian bees amounted in all to 6 cwt., and a year later six stocks gathered at the Heather nearly 100 lbs. each. One I weighed on the fifth day after it was set down had risen in weight 50 lbs. Only 10 yards from these stood a Ligurian hive, the property of some other bee-keeper, did not make 1 lb. Why was this? it required to be "stimulated." The bees had not room to work, the hive being by far too small. More room would have freed it from idleness, but it would not have gathered honey. Before these foreign bees care about setting about that in earnest they must be in full strength, whether they be stocks or swarms; although two years ago four Syrians occupying four frames each filled a large portion of these with honey, when a lot of blacks close to them in full strength did no more.

"A Renfrewshire Bee-keeper" recorded in a back number of this Journal the gathering of a crossed Ligurian, which amounted to 200 lbs., which did not include the season's late gathering either. I saw in the north of Scotland a cross that 250 lbs. had been taken from. I trust these remarks will satisfy "N. B. K." as to the

superiority of the yellow races of bees, and enable him to manage them in the future in such a way that they will prove to him their superior excellence when under the management of a clever bee-keeper; but I have not touched upon the Carniolians. These mild-tempered bees have also proved themselves superior to the blacks, and in the hands of many where the climate is severe, owing to their hardiness, superior to the Ligurian. One bee-keeper of my acquaintance who failed entirely to do anything with the Ligurian told me lately that since he kept Carniolians he has realised about 20 lbs. annually from about ten hives. If I keep well I will during the season give results of crossed Cyprians, crossed and pure Syrians, and the same with Carniolians. They have begun the race, I hope to see it end. The Syrians were the first to begin their crosses and the crossed Cyprians next, while the Carniolians are not far behind. The Cyprian blood will get no feeding. All the others have got it, and well for them, because since that the weather is cold and stormy, and bees do not care about being fed during the cold winds in March. It is of all months the most treacherous, and is the month bees should be let alone.—A LANARKSHIRE BEE-KEEPER.

THE HONEY MARKET.

In the first paragraph of his last contribution on this subject Dr. Walker states that I (*inter alios*) am not open to conviction. To prove this he first assumes that I am a Scotchman, then charges the Scotch with an obstinate adherence to their own opinions, and to prove this last charge shows that he himself is Scotch, and then judges Scotchmen by his own standard. I am not Scotch, and must emphatically protest against this line of argument. In his second paragraph he proves success by proclaiming first a loss of £500 (presumably in 1884) and next a gross profit of £100 on a £700 turnover in 1885. Why not have said what the nett profit was? The gross profit conveys a very hazy idea to the minds of the uninitiated.

Then Dr. Walker evades the question as to the number of shareholders. True, 6000 shares have been taken, but 400 individuals have taken the whole 6000. In his third paragraph he says that "The Bee and Fruit Farming Company" was "praised to the skies by 'Felix' and others." This is untrue so far as I am concerned. Can he point to one single line or word of praise which I have written respecting this Company, either directly or by implication? I know nothing whatever about this Company, its shareholders, or any other matter or thing connected with it.

Again, your correspondent says that there has been "no honest explanation" of the reason the "Bee-keepers' Union" did not start, and adds, "a casual reference to the fact by 'Felix' and a pious expression by 'A. L. B.' are all the public knows of its premature death." Here again it is insinuated that I was in some way directly or indirectly connected with this project. This again is untrue. I know nothing whatever about the proposed "Union" except what I have read in these papers and in the *Bee Journal*. My views on this "Union" are expressed in the issue of this Journal for 30th September, 1886, in which I say, "An abortive attempt was made to start a Bee-keepers' Union for this purpose (selling honey), but after the first few weeks the idea went out and has not since been brought forward so far as I have seen. On the whole it is perhaps just as well, because but little can really be achieved by what is after all a friendly society upon a somewhat larger basis than usual." Perhaps Dr. Walker was too busy amongst "Chrysanthemums and babies" to read his paper at the time when the above paragraph was written.

In his fifth paragraph he says, "Sales are steadily increasing." There is nothing said about the prices given to the produce for the honey the sales of which are steadily increasing. Again I say, anyone can sell honey where a low price is asked, but if "increased sales" are made at the expense of reduced prices—paid to producers—these "increased sales" are not matters for congratulation amongst "*bonâ fide*" bee-keepers.

Yet again your correspondent says, "in spite of the Canadian honey and other honey, which is honey only in name." Does he mean to accuse the bee-keepers of Canada of wholesale adulteration and sending over here a compound, "honey only in name?" If so, why not have made this statement when the Canadian bee-keepers were over in this country, and might have defended themselves against such an uncalled for attack? Then to prove the inferiority of foreign honey he accepts the judgment of "children," and concludes with an uncalled for sneer at "the constant rage for cheapness."

In future I shall decline to notice statements made without the shadow of a foundation. I shall decline to enter a discussion when my opponent evades direct issues, and takes refuge in insinuations, vague generalities, and the *argumentum ad hominem*. Both the space of this Journal and my own time may be more profitably occupied than in correcting such statements.—FELIX.

TRADE CATALOGUES RECEIVED.

Friedrich Adolph Haage, jun., Erfurt.—*Illustrated Catalogue of Flower and Vegetable Seeds.*

Biddles & Co., Loughborough.—*Illustrated Seed Catalogue for 1887.*

James Veitch & Sons, Royal Exotic Nursery, Chelsea.—*Catalogue of Agricultural Seeds.*

Eric F. Such, Maidenhead.—*Catalogue of Chrysanthemums, &c.*



•• All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

TO CONTRIBUTORS.—Our friends who favour with communications on controversial subjects will oblige by sending their articles as soon after they receive the Journal as possible. Our space is practically filled on Monday, and only articles that are "expected," and which arrive on Tuesday, can, as a rule, be inserted in the current issue.

Books (E. B.).—You will find it difficult to obtain works dealing specially with the subject in which you are interested, but all the following are reliable and will assist you:—Sach's "Text Book of Botany, Morphological, and Physiological," Clarendon Press, Amen Corner, London, E.C.; "Elements of Agricultural Chemistry and Geology," by Johnston and Church, W. Blackwood & Sons, 37, Paternoster Row, London. Several works on Fungi by Dr. M. C. Cooke are published by W. H. Allen & Co., 13, Waterloo Place, London. "A Plain and Easy Account of British Fungi," might suit you, or a volume entitled "Fungi," by the same author, published by C. Kegan Paul, Trench & Co., Paternoster Row. A volume on Geology by A. Geikie, published by Macmillan & Co., Bedford Street, Strand, treats the subject very thoroughly; Hooker and Bentham's "Genera Plantarum," is published by L. Reeve & Co., Henrietta Street, Covent Garden, the price in three volumes being £8 2s. De Candolle's "Prodromus," was published in Paris, but we do not know the price. Both this and the preceding works could be consulted in any good botanical library.

The Eucharis Mite (York).—We have no doubt the creature of which you send a magnified sketch is the enemy that is doing so much injury to Eucharis and other bulbs. We shall shortly publish a method that a cultivator has successfully adopted in extirpating the pest.

Plants and Prices (J. B.).—As we have stated times out of number, it is quite beyond our province to recommend dealers, or to quote prices for plants or garden requisites. To do so would be an interference with the business of dealers, for which we have no justification. You neither sent your name nor address.

Grafting Trees (H. G. B.).—You have done right in taking the scions now and placing them in the ground. They should be in a cool place for retarding the swelling of the buds, so that the rise of sap in the stock is in advance of that in the scion when the grafting is done. You had better wait until the buds commence swelling before cutting down the trees, and then attach the scions to the stocks. Reine Marie Henriette Rose would probably be suitable for your conservatory; it is sometimes called Red Gloire de Dijon.

Mealy Bug on Vines (Reader).—Your letter arrived just too late to be answered last week, but you would see a reply to another correspondent that would meet your case. Mr. Murray further writes:—"The tar mixture can be applied over all the Vines, eyes included, when in a dormant state; and I will guarantee and prove it to be an effectual cure without doing any harm to the Vines, taking for granted that the vinery is properly cleansed also." This assurance may possibly be of service to other readers than yourself.

Gloxinias and Cyclamens (Merchant).—Gloxinias raised from seed sown now in brisk heat and the plants well grown in a warm pit will flower freely in the autumn. Larger plants can be had from tubers of the size of Walnuts or thereabouts; but if these are potted now the plants will flower about midsummer. A packet of seed saved from a good collection usually affords many beautiful varieties, few being inferior. They are not, however, equal in quality to the best named sorts, and if you desire to purchase these and indicate the number required we will assist you in making a selection. We shall be glad also if you at the same time favour with your name and address. The name Cyclamen "grandiflorum" indicates a large-flowered strain of Cyclamen persicum, and seed and plants can be had from the leading growers.

Grafting and Inarching Vines (Jubilee).—If you cut down your Vine now and graft by splitting the stock as you propose, the probability is you will fail in effecting a union through excessive "bleeding." Inarching is the better mode, or what is known as bottle-grafting, which is practically the same thing. Take a slice off the scion, not merely shaving off the bark, but cutting pretty well into the wood, and a corresponding slice from the young cane at the bottom of your rod; fit the two together neatly and quickly, then bind with tape or matting. If there is one good eye or bud above the ligature that will suffice, and the slice may be 4 or 5 inches long, provided the portion below is long enough to be inserted in a bottle of water and kept there for supporting the scion till it is fairly attached to the stock and is sustained by the roots. It is prudent to keep water in the

bottle for a considerable time after growth extends from the scion, the growth from the stock being gradually suppressed for diverting the sap into the growth proceeding from the scion. The right time for incarching is when the buds on the stock are swelling freely, those on the scion being dormant. In respect to the Muscat scion, as it appears to be too short for bottle-grafting, you had better attach a portion of it to the cut-back Vine in the pot, as that Vine may not bleed, and will certainly not do so to the same extent that a Vine would cut down at the present time. Shave off a portion from the stock and scion, fit and bind as before, and cover with grafting wax. This may be made by mixing equal parts of yellow wax and turpentine, say an ounce of each; a little more than half an ounce of Burgundy pitch and a quarter of an ounce of mutton suet, melting, stirring, and applying when cool enough. You might take an eye off the scion and from that raise a young Vine in sandy loam in a warm frame or house.

Planting Roses and Vines (Rosarian).—You might grow two Vines, provided you place them at one end of your house, and keep the border in which they are planted separated from that in which you plant the Roses. Black Hamburg would suit you as well as any variety. We only advise you to plant Tea and Noisette varieties in your house. For the pillars you will find the following suitable:—*Maréchal Niel*, *Gloire de Dijon*, *Reine Marie Henriette*, *William Allan Richardson*, *Cheshunt Hybrid*, *Devonensis* (climbing), *Lamarque*, *Rêve d'Or*, and *Belle Lyonnaise*. For bushes: *Safrano*, *Niphetos*, *Isabella Sprunt*, *Madame Falcot*, *Madame Lambard*, *Grace Darling*, *The Bride*, *Adam*, *Alba Rosea*, *Catherine Mermet*, *Comtesse de Nalailac*, *Etendard de Jeanne d'Arc*, *Innocente Pirola*, *Jean Ducher*, *Perle de Lyon*, *Perle des Jardins*, *Madame Denis*, *Madame Welch*, *Marie Van Houtte*, *Rubens*, *Souvenir d'un Ami*, *Souvenir d'Elise*, *Souvenir de Paul Neyron*, and *Madame Hippolyte Jamain*. We do not advise you to plant any standards, unless it is for a short time, until the others occupy the whole of the space. This, however, is a matter of taste, and if we wished to give a furnished appearance to the house from the first we might employ a row of low standards, to be removed when the dwarf plants attained some size. The whole of the varieties named are good free flowering sorts, that we have proved will do well under glass. Many of the varieties recommended for bushes would do for climbing, only they are slower than those named for that purpose. If you wish to use any of them for that purpose, the first, second, third, fifth, tenth, sixteenth, nineteenth, and twentieth are suitable, and, with good treatment, would soon travel up the roof of an ordinary house. We should, however, if we employed them for bushes, prefer to use those named for pillars. If you require any further information on the subject, either as regards the preparation of the border or the soil, we shall be pleased to assist you.

Autumn Cauliflowers (An Old Subscriber).—You have been rightly informed as to the merits of Eclipse. Treated as you propose it will be available for use fully a fortnight earlier than Veitch's Autumn Giant, and it in many respects much resembles that deservedly popular variety. For the later supplies we prefer the Autumn Giant; seed of both may be sown under glass about the present time, or in boxes as you propose doing. Some of the seedlings may be pricked out in a frame and the rest on a warm border, finally transplanting to good ground before they spoil each other. Veitch's Autumn Giant sown in September and wintered in a cold frame or under handlights commences to heart early in August, and if more seed is sown under glass early in the spring and again in the open some time in April or when the main crop Broccoli is sown, a close and good succession will be maintained till frosts intervene. When the plants of any Cauliflowers are well advanced well mould up the stems, and in the furrows formed between the rows abundance of sewage may be poured. Thus applied it is very safe and effective, and we do not suppose you would give them too much when in free growth, but it is easy to do so when first planted.

Neglected Land Manure for Potatoes (W. Surrey).—As you have had the land turned over with steam machinery, drag it well crossways and harrow it repeatedly in dry weather, to bring the rubbish to the surface; when dry make it into small heaps and burn, spreading the ashes on the land; then plant with strong-growing Potatoes, spreading in the drills with the sets some good chemical manure. As to the precise mixture, all have not exactly the same effect on differing soils, but that recommended by Dr. Voelcker answers well generally:—"As a rule, I find," says Dr. Voelcker, "that potash salts by themselves do not produce a very marked effect. They produce a greater effect when used in conjunction with phosphate of lime and ammonia. I have found good results from 4 cwt. of mineral superphosphate, which will cost about 15s., and 3 cwt. of potash salts—that is, kainit. That would cost 8s. Then 2 cwt. of sulphate of ammonia, taking it at an average price of 18s., would be 36s.; so that it would cost nearly £3 an acre. In many instances when I have applied this mixture I have more than doubled the crop—raised the produce from 6 tons to 12 tons. I need not say that that paid remarkably well. I should mix the manure and apply it as early in spring as possible. Potash is not liable to be washed out of the land, neither is the phosphate of lime. The only risk you run is that in very wet weather some of the ammonia may be washed out. Artificial manure is not a preventive against disease. I recommend it in order to ensure as large a yield as possible, and a manure which supplies all the constituents in the proper proportion. Farmyard manure might be applied or let alone." The *Magnum Bonum* would be a good sort to grow, and the crop would pay for labour and manure, also leave the land far cleaner than it would be after a winter fallow. The rows may be about 27 inches apart, and a pound of the mixture spread in a length of about 8 yards of drill. The strong haulms of the Potatoes will prevent the growth of weeds; but if the Potatoes do not grow as freely as is desirable, top-dress with 2 cwt. of nitrate of soda per acre, on a showery day if possible, or just before earthing up the rows.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (*H. T. Frere*).—*Crassula lactea*. (*A. L.*).—We cannot name your plant without samples of the flowers or some description.

COVENT GARDEN MARKET.—FEBRUARY 23RD.

VERY little business doing and short arrivals. Good samples of Grapes still improving in value.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples	1/2 sieve	2 0 to 5 0	Melon	each	0 0 to 0 0
" Nova Scotia and			Oranges	100	6 0 to 12 0
Canada, per barrel	10 0	13 0	Peaches	per doz.	0 0 to 0 0
Cherries	1/2 sieve	0 0 to 0 0	Pears	dozen	1 0 to 2 0
Cobs	100 lb.	60 0 to 70 0	Pine Apples English	lb.	1 6 to 2 0
Figs	dozen	0 0 to 0 0	Plums	1/2 sieve	1 0 to 2 0
Grapes	lb.	2 6 to 5 0	St. Michael Pines	each	2 0 to 5 0
Lemons	case	10 0 to 15 0	Strawberries	per lb.	0 0 to 0 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes	dozen	1 0 to 0 0	Lettuce	dozen	1 0 to 1 6
Asparagus	bundle	8 0 to 0 0	Mushrooms	punnet	0 6 to 1 0
Beans, Kidney ..	per lb.	1 6 to 0 0	Mustard and Cress	punnet	0 2 to 0 0
Beet, Red	dozen	1 0 to 2 0	Onions	bunch	0 3 to 0 0
Broccoli	bundle	0 0 to 0 0	Parsley	dozen bunches	2 0 to 3 0
Brussels Sprouts	1/2 sieve	2 0 to 2 6	Parsnips	dozen	1 0 to 2 0
Cabbage	dozen	1 6 to 0 0	Potatoes	cwt.	4 0 to 5 0
Capicums	100	1 6 to 2 0	" Kidney	cwt.	4 0 to 5 0
Carrots	bunch	0 4 to 0 0	Rhubarb	bundle	0 2 to 0 0
Cauliflowers	dozen	3 0 to 4 0	Salsafy	bundle	1 0 to 1 0
Celery	bundle	1 8 to 2 0	Scorzonera	bundle	1 6 to 0 0
Coleworts	doz. bunches	2 0 to 4 0	Seakale	per basket	1 6 to 2 0
Cucumbers	each	0 6 to 1 0	Shallots	lb.	0 8 to 0 6
Endive	dozen	1 0 to 2 0	Spinach	bushel	3 0 to 4 0
Herbs	bunch	0 2 to 0 0	Tomatoes	lb.	1 0 to 2 0
Leeks	bunch	0 3 to 0 4	Turnips	bunch	0 4 to 0 6

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Abutilons	12 bunches	2 0 to 4 0	Lily of the Valley, 12 sprays	0 9 to 1 6	
Anna Lilies	12 blooms	4 0 to 6 0	Marguerites	12 bunches	2 0 to 6 0
Azalea	12 sprays	0 6 to 1 0	Mignonette	12 bunches	4 0 to 6 0
Bouvardias	per bunch	0 8 to 1 0	Narciss, Paper-white, bunch	0 4 to 0 6	
Camellias	12 blooms	2 0 to 4 0	" White, English, bunch	1 3 to 1 6	
Carnations	12 blooms	1 0 to 3 0	Pelargoniums, per 12 trusses	0 0 to 0 0	
"	12 bunches	0 0 to 0 0	" scarlet, 12 trusses	0 6 to 1 6	
Chrysanthemums	12 bchs.	0 0 to 0 0	Roses	12 bunches	0 0 to 0 0
"	12 blooms	0 0 to 0 0	" (indoor), per dozen	1 0 to 2 6	
Cornflower	12 bunches	0 0 to 0 0	" Tea	dozen	2 0 to 4 9
Cyclamen	12 blooms	0 4 to 0 9	" red (French) dozen	2 6 to 3 6	
Dahlias	12 bunches	0 0 to 0 0	Parma Violets (French)	6 0 to 7 0	
Epiphyllum	doz. blooms	0 6 to 0 0	Poinsettia	12 blooms	0 0 to 0 0
Encharis	per dozen	4 0 to 6 0	Primula (single) per bunch	0 4 to 0 6	
Gardenias	12 blooms	12 0 to 24 0	" (double) per bunch	1 0 to 1 6	
Hyacinths, Roman, 12 sprays	1 0 to 1 6		Stocks, various, 12 bunches	0 0 to 0 0	
"	12 sprays	4 0 to 6 0	Tropæolum	12 bunches	1 6 to 2 0
Lapageria, white, 12 blooms	2 0 to 4 0		Tuberose	12 blooms	2 0 to 4 0
Lapageria, red .. 12 blooms	1 0 to 2 0		Tulips	doz. blooms	0 9 to 1 0
" longiflorum, 12 blms.	0 0 to 0 0		Violets	12 bunches	1 6 to 2 6
Lilac (white), French, bunch	6 0 to 8 0		" Czar, French, per bunch	2 0 to 2 6	

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi ..	dozen	9 0 to 18 0	Ferns, in variety ..	dozen	4 0 to 18 0
Arbor vitæ (golden)	dozen	6 0 to 9 0	Ficus elastica	each	1 6 to 7 0
" (common)	dozen	6 0 to 12 0	Foliage Plants, var.	each	2 0 to 10 0
Azalea	per dozen	24 0 to 36 0	Hyacinths	per dozen	6 0 to 9 0
Begonias	dozen	4 0 to 9 0	Lilies Valley	dozen	18 0 to 24 0
Cineraria	per dozen	9 0 to 12 0	Marguerite Daisy ..	dozen	6 0 to 12 0
Cyclamen	dozen	12 0 to 24 0	Myrtles	dozen	6 0 to 12 0
Dracæna terminalis	dozen	30 0 to 60 0	Narciss (various) ..	dozen	12 0 to 15 0
" viridis	dozen	12 0 to 24 0	Palms, in var.	each	2 6 to 21 0
Erica, various	dozen	9 0 to 12 0	Primula sisensis	per doz.	4 0 to 6 0
Euonymus, in var.	dozen	6 0 to 18 0	Solanums	per doz.	9 0 to 12 0
Evergreens, in var.	dozen	6 0 to 24 0	Tulips	per doz. pots	6 0 to 9 0



DAIRY FARMING.

MILK, butter, cheese, calves, pork, poultry, and eggs are the chief articles of produce for sale which a first-class dairy farm affords, and it is an important and notable fact that every one of them commands a brisk sale and affords a quick return upon the expenditure incurred in its production. To insure this, however, and to render dairy farming really profitable, it is indispensable that the whole of the produce is of superior quality; there will then be no difficulty in finding a ready market for it. There can be no doubt that the high price given for much imported butter is simply owing to its superiority over other butter in the market; it also affords proof of the carelessness of a large majority of farmers in this country about the matter. Yet under a depression which becomes more and more intense it is surely worth while turning our attention to a system of farm manage-

ment which is so highly profitable that it enables the farmers of Cheshire to continue farming profitably without any abatement of rent.

The report on the Dairy and Stock Farm Prize Competition of 1885, by Mr. J. Chalmers Morton, which was published in the first part of the *Journal of the Royal Agricultural Society of England* last year, is probably the most important paper on the subject extant, and any of our readers who are desirous of gaining information of practical dairy farming would do well to procure a copy of it. We may take for example the report of Chorlton Farm, the area of which is 166 acres, about half being in permanent pasture and half arable, for which the tenant was paying £2 an acre. To this must be added an outlay for labour of 29s. an acre; the expenditure for manures was £132, and the value of purchased and home-grown food used was £530, which gives an annual outlay of nearly £4 an acre for food and manure.

An account of the sales of the produce of this farm in the previous year, when sixty-four cows had been milked, showed that 360 cheeses, weighing 221 cwt. 1 qr. 19 lbs., sold at 70s. to 75s. per cwt., for £830 5s. 7d.; butter, 2047 lbs., at 1s. to 1s. 7d., £127 4s.; milk, 6214 gallons, at 8d. to 10½d., £255 19s. 9d.; fifty-eight fat pigs, averaging £4 1s. 1d., £235 2s. 10d.; two cows, £16 5s., £32 10s.; two heifers at £12 8s. 9d., £12 17s. 6d.; ten fat cattle at £22 14s., £227; nine young calves at £1 8s. 4d., £12 15s.; nine bull calves at £5, £45; eleven calves at £2 15s., £30 5s.; forty fat sheep at £3 10s., £140; corn and Potatoes, £390 11s. 3d. The sales of milk, cheese, butter, and pigs amounted thus to £1449 2s. 3d., or £22 12s. 10d. per cow, in addition to which twenty-nine calves had been sold for £97 10s. It will be seen that the receipts amounted to £2352 0s. 11d., and that the cost in rent, labour, food purchased, and manures comes to little more than half of that amount. To the outlay, however, thus specified there should be added purchases of cows, sheep, pigs, and grazing stock to the amount of £208 10s. 6d.

The report goes on to give an account of the process of cheese-making practised on this farm, which is so explicit that we append it here. "The long rectangular cheese-vat holds 265 gallons, having a false bottom with an arrangement for putting in cold or hot water beneath the milk. The evening's milk is partly skimmed in the morning and then passed through the sieve into this vessel, and the morning's milk is added as it comes in from the yard. The whole is heated, if heat is required, up to 90° in winter, 84° in summer; a little colouring matter is dropped in, and Danish rennet is then added at the rate of 2 ozs. to 40 gallons, and the milk acts in about an hour. It is then cut by a sieve-cutter with a 2-inch mesh, slowly thrust and lifted alternately. After a short interval of rest the curd is lifted slowly with the hand and turned over in the vat; this is continued for about fifteen minutes, and then it is again broken with a half-inch mesh and left for an hour and a half longer. The whey is drawn off through a vertical sieve at the side of the vat, and the curd is gathered gradually to one end of the trough, the whey being allowed to escape to the tank, where it stands till the next morning and is skimmed, the rest going to the pig-vat. The curd is gathered into a sheet and left to drain, being pressed under leverage for a while. The salt added to the curd is about ½ lb. to every 20 lbs. of curd. It is not added until a certain change has passed in the curd by lapse of time—a certain degree of acidity and consequent stringiness being developed before it is put into the mill. (It is weighed out in 30 lb. blocks,

each of which, after being ground in the mill, is mixed with 20 ozs. of salt turned over and over in the tub; and with the hands thereafter packed closely into vats, having a tin eke protruding above the level of the wood. It is turned in the evening; next day a certain amount of pressure is applied, and skewers thrust through holes in the vat are used for facilitating the escape of any remaining whey. The second day it is put under full pressure. The cheeses are turned once a day, being three days in the press. When taken out they are bound in cloth, lifted to the cheese-floor, where they are turned every day, and sold when three to four weeks old."

It is especially noteworthy that the whole of the pasture on this farm is grazed, none of it being mown for hay, and that the herd is maintained from Christmas till May chiefly by fodder and roots obtained from the arable land.

WORK ON THE HOME FARM.

For more than a week after writing our last note the north-east wind continued blowing so steadily that the surface of the land became wonderfully dry for February. The condition of the soil was so favourable for work that we, in common with many other farmers, got in much of the spring corn upon the light and mixed-soil farms. Upon the heavy land we kept all the ploughs going, gladly turning the fine weather to account for bringing up our arrears of such work, and we are now so forward with it that we hope to get through our sowing much sooner than we did last year. All our arrangements for the cropping of the year are matured, the land is ready, so is the seed corn, and our manures for sowing upon both winter and spring corn are ordered. Much thought has been given to the manures, for with our six farms in hand the sum total expended in manures is a heavy one, and we have carefully to consider ways and means beforehand. That manure must be had is a foregone conclusion, for without it we know that our crops will be inferior—so inferior that our work will be comparatively useless. Before ordering Clover or mixed seeds for layers, due thought must be given to results. Both Red and White Clover make excellent fodder, and in a favourable climate a crop of seed may be saved. If only the seed is pure and good it is a very profitable crop. We have recently sold a considerable quantity of seed at prices ranging from 33s. to 40s. per bushel. Taking the average crop of Clover seed at 4 bushels an acre, it will easily be seen that to obtain it from the second growth of Clover is a very satisfactory business. Two and three years mixed layers will probably have more attention as a means of saving labour. We are not, however, prepared to adopt them to the entire exclusion of Clover pure and simple.

That markets fluctuate is a well-known fact, of which we have just had a striking illustration, our fat sheep sold this week having realised 5s. a head more than similar animals sold last week in the same market. Forward hoggets are now being sent into market in prime condition; fat ewes withdrawn from the flock last autumn are also being sent for sale in weekly batches. They have now been in folds four or five months, and have done much good upon the land. The lambing is going on satisfactorily; the losses so far are few and far between; there is a fair proportion of twins, and all are strong and healthy. We have begun folding the ewes and lambs upon white Turnips, and some lamb food will be used as soon as they can eat it. The Turnips have not suffered from the severe frost, and there are plenty of green leaves upon them for the lambs.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.					Rain
	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1887. February.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sunday .....13	30.444	36.2	33.8	N.E.	36.1	42.1	30.9	64.2	26.8	—	
Monday .....14	30.244	33.9	32.8	N.	36.2	40.2	29.6	48.3	25.9	—	
Tuesday .....15	30.300	37.3	35.2	E.	36.2	38.7	29.2	42.1	27.7	—	
Wednesday ...16	30.455	29.3	27.6	N.E.	36.3	42.1	25.1	67.6	20.7	—	
Thursday ....17	30.420	24.7	24.3	Calm	35.4	31.9	22.6	40.2	16.6	0.117	
Friday .....18	30.035	36.7	36.6	S.	35.0	43.4	23.6	50.1	18.8	0.110	
Saturday .....19	30.215	39.7	38.2	S.E.	34.8	44.4	36.6	66.0	30.5	—	
	30.310	34.0	32.6	—	35.7	40.4	28.2	54.1	23.9	0.227	

REMARKS.

18th.—Cold N.E. wind but fine.
 14th.—Generally cloudy but some sunshine in the middle of the day.
 15th.—A little sun in afternoon, at other times cloudy.
 16th.—Cold, fresh, and very bright.
 17th.—Rather thick fog, increasing towards evening, then clear.
 18th.—Silver thaw, wet morning, damp afternoon, fair evening.
 19th.—Generally fine with some bright sunshine.
 A rather cloudy but not wet week, and very cold—the average temperature only about 2 degrees above freezing point.—G. J. SYMONS.



COMING EVENTS

8	TH	Linnæan Society at 8 P.M.
4	F	
5	S	
6	SUN	2ND SUNDAY IN LENT.
7	M	
8	TU	Royal Horticultural Society. Fruit and Floral Committees at 11 A.M.
9	W	

JUBILEE PROPOSITIONS.

AS we suspected when introducing as a matter "worthy of consideration" the raising of a national fund in commemoration of the fiftieth anniversary of Her Majesty's reign, to be expressed in the form of a permanent erection as the head quarters of horticulture in this country, other methods of celebrating the event have been advanced. It has been proposed to obtain land with the object of finding employment for "surplus" gardeners in growing fruit and vegetables for market. However desirable it may be to find occupation for men willing to labour, we are brought face to face with an initial difficulty—namely, if the demand for garden produce is met by existing establishments, and extra labour cannot be profitably employed in increasing the supply, there is small hope of any organisation of the nature suggested proving satisfactory. The next proposition is the establishment of a home for old or disabled gardeners in poor circumstances; and it is further suggested that if £20,000 could be raised and worked in connection with the Gardeners' Royal Benevolent Institution, with or without a "home," a large amount of distress might be prevented. Undoubtedly that is so, and in all probability much more good could be done with such a sum without a necessarily costly "home" than with one. A third proposition is raising a fund for granting relief to gardeners out of employment. This, like some other of the propositions, has met with no response, not through any want of sympathy with the object, but from a consciousness of the impracticability of any such scheme. We now come to the proposition of Mr. C. Penny—namely, the establishment of a home for the orphans of gardeners. This admirable suggestion has met with an encouraging share of approval.

Several letters have appeared in our columns in favour of the project, and none against it. Others appear in our present issue. "C. H. S." pleads eloquently on behalf of the project, and proposes the opening of subscription lists. Mr. Hull expresses his sympathy in the practical form of a cheque, which we have forwarded to Mr. Penny; and Mr. Goodacre and Mr. D. Thomson contribute letters worthy of attentive consideration.

The scheme, as Mr. Goodacre observes, is a gigantic one, and in carrying it out there must be strong and earnest workers on its behalf. A question for the consideration of the projector and his supporters is the desirability of forming a central committee for deciding on a form of appeal and drafting propositions to be submitted to meetings of gardeners and others in sympathy with the object in various parts of the country. With a complete organisation and wide concerted action there is

not a doubt that a very large sum of money may be collected with the object of assisting the widows of gardeners in bringing up their children, and affording orphans a means of support and education fitting them for the duties of life. The precise form in which this could be best done is a question that must be governed by the circumstances of the case. The object itself is so good that it will command support if placed before the public in a manner that could be devised by a committee of business men, for no individual however able and earnest ought to be expected to carry out a work of the magnitude suggested even with the aid, generous though it may be, of casual helpers, and it appears to us that an administrative body is necessary for carrying out, in the best manner of which it is capable, the project which the Prince of Wales's gardener has had the honour to originate. If Mr. Penny should be fortunate in securing the patronage of his august master, the "popular Prince," to this good object its success would be assured.

We give the same prominence to the gardeners' orphanage scheme that we gave to the project first mentioned, and leave our readers to decide on their line of action. We shall be ready to help forward either or both the objects, and shall rejoice if Mr. Penny and his coadjutors achieve the object of their desire.

The letters received this week are appended:—

THE idea of a gardeners' orphanage as a Jubilee institution is as noble as it is gigantic, and unless it meets with general approval and support the task will be a hopeless one for gardeners to accomplish. It will require a large amount of outside help, as the sum of money needed before such a scheme could look at all successful is very large, and considering the depressed state of trade, we cannot expect very much of this. Fortunately we find the nursery and seedsmen amongst the most generously disposed, especially towards gardeners, but as these are mostly located in towns where they will possibly subscribe to the Imperial Institute fund, we cannot expect the support we might otherwise get in more fortunate times.

We have in the Railway Orphanage at Derby the most modern and best-managed institution to be found in the country. The architectural plans and supervision, and many of the arrangements, are all gratuitous, and the children carried free from any part of the country to Derby, yet the lowest possible cost is £14 per head per annum.

When we look at the enormous advantage the railway authorities have compared with gardeners, who are isolated and scattered far and wide, it makes the task look more difficult for the latter to accomplish.

To make anything like a respectable start it will require £30,000 to procure suitable land and erect proper buildings. There are about one thousand nursery and seedsmen, and about five thousand gardeners in the country. To raise this sum it would average something like £5 per head, but whether this would be done remains to be seen. I trust the above will meet with general support; but I am wondering if an orphans' fund could not be associated in some way with the Gardeners' Royal Benevolent Institution, and meet with more approval.

If we could dispel the notion of ill-treatment to boarded-out children, I think some such system could be adopted at much less cost, as I find the average cost per head for several unions is 4s. 1d. per week. If anyone chooses to inquire of Mr. Hall, Railway Orphanage, Derby, that gentleman will be most happy to give any information on the subject.—J. H. GOODACRE, *Elvaston Castle Gardens*.

YOUR correspondent, "A. L. G." seems somewhat of a pessimist, but I hope that the subject of this letter may be considered in future as the gardeners' orphanage—that is to say, the question of its being established must be admitted, and not for a moment doubted.

Surely the excellent suggestion of Mr. Penny will not be allowed by the gardeners of England to fall flat. I would ask them to remember the project is not one to glorify the dead or to flatter the living.

What Mr. Penny proposes is an institution to save from want the children of gardeners who may be cut off without the opportunity of providing anything for their family, and who shall say where the calamity shall first fall?

There is an old saying that mankind thinks every other man mortal but himself—that is to say, whilst we are too apt to think death may overtake many with whom we are acquainted, we too often fail to expect such a calamity in our own case. There is no institution in existence connected with gardeners that is fairly worthy being so described, whilst almost every other trade and profession have their institutions to provide for poor children that may require assistance.

It is essential that the project should be set going by gardeners and those who are most directly interested in such an institution; when it

will be seen that on its object being fully understood and evidence given in a substantial form that the gardeners of this country are determined to carry out the idea, every nobleman and gentleman in the land will give it generous support, for are not these patrons reminded of the services the gardener renders when night after night the beautiful productions of the floral world are grouped upon the dinner table? Will they not also admit the justice of the appeal when they remember that to produce these flowers and those charming combinations many a gardener has sown the seeds of consumption, and has been cut off in the prime of manhood from his health being undermined by the sudden transition from one extreme of temperature to another?

As Mr. Penny says, "He gives twice who gives quickly," and I hope to see that the gardeners of England will take the matter up in a spirited manner, and not only announce themselves as annual subscribers, but will also, where possible, allow their names to be attached to a committee, which should be formed at once to carry out the project in the best possible manner. I may also suggest the desirability of your allowing your columns to be occupied in publishing the list of subscriptions, that the greatest publicity may be at once given to it, and to assist Mr. Penny, who probably up to this time has not been able to formulate his plans.

I would, therefore, suggest that you announce that you are prepared to receive subscriptions toward the object, and that they shall be acknowledged weekly in your paper, as I hope to see done also in other gardening journals, and I feel sure this proposition will meet Mr. Penny's wishes, as well as the wish of all gardeners who are interested in the movement.

If you start a list I shall be glad to support my appeal by becoming the subscriber of 21s. annually.—C. H. S.

I WISH Mr. Penny all the success possible in his endeavour to raise a home for these bereaved ones, the most fitting memorial for this year of jubilee. May I suggest that every gardener should have a strong appeal sent to him to become an annual subscriber, and also urged to lay the matter before his employer? and if each master could be urged to give at least 1 guinea as a donation to start with and a yearly subscription of not less than 5s., what a blessing would be conferred upon a class of men who as a body are very good and intelligent, and when attentive to their duties afford us who are engaged in the struggle of life so large an amount of domestic pleasure by their productions. Kindly forward the enclosed.—CHARLES HULL.

SURELY there cannot be many gardeners worthy of the name who can do otherwise than meet Mr. Penny's proposal to found an orphanage with a sympathetic response. The object is so thoroughly humane and christian, and no doubt as necessary as it is humane, that one may suppose those who can offer any objections to it must be few in number. To advocate the desirability of an orphanage for the destitute children of gardeners is superfluous, and my chief object in writing is to suggest that the scheme should be worked in connection with the Gardeners' Benevolent Institution, which has done so much good, and is now so stable as to form a good foundation or stock for the other branch of benevolence. I should dread any institution that might in any way weaken the power of the Benevolent Institution in ministering to the aged and destitute of our profession, and see no reason why this new scheme should have this effect. The funds could be kept distinct, and perhaps the same machinery might suffice to work both charities, and so save expense. I merely throw out this suggestion as being perhaps worthy of being considered by Mr. Penny and others interested in this very commendable Jubilee scheme.—D. THOMSON, *Drumlanrig*.

THE proposed gardeners' orphanage seems to me deserving of hearty support throughout the kingdom, and I am convinced that an adequate fund could soon be raised when the scheme assumes a definite form. I have forwarded my name to the Editor of this Journal, and if authorised subscription forms are sent to me I will undertake to obtain £5 as a start.—A GARDENER.

Just as we are preparing for press we receive and insert the last letter of the above series. It is a short but suggestive letter, as if one gardener undertakes to collect the sum of £5, it may be surmised that many other gardeners similarly disposed might collect equal or larger sums—namely, from their friends who are interested in gardening, and who would be glad to have an opportunity of sharing in such a laudable work if subscription forms were placed before them.

A SELECTION OF PEAS.

I SUPPOSE we shall never see the last of those extra early round-seeded sorts, and which have only their earliness to recommend them. A good selection of Sangster's No. 1 such as grown by the farmers for supplying the London markets is yet fully equal to any of them, but there is no necessity to sow even this in private gardens. Either American Wonder or Chelsea Gem may be grown in rough frames, or at the foot of sunny walls and on warm borders for affording the

earliest pickings, and these will be closely followed by the invaluable William I. William II., a selection from the last-named, is nearly as robust and early, and superior in point of quality; this should be given a trial. No second early sort of quite recent introduction can be said to equal either Telegraph or Telephone, and one of these should always be sown early in March. Stratagem, which grows to about half the height of Telephone, is also suitable for second early sowings, and on the whole this is yet one of the very best exhibition Peas available up to the end of July. Criterion ought to be quite as popular as Ne Plus Ultra. It is usually fit for use in close succession to Telephone, attains a height of about 6 feet, crops heavily, the pods being comparatively small, but well filled with very green Peas of excellent flavour. Dr. McLean is not needed here, but for small gardens, or where no tall stakes are available, it may well be substituted for Criterion. If the true stock of Hair's Dwarf Mammoth can be obtained no better sort for either second early or late crops will be found for the owner of a small garden. Early Paragon appears to be very distinct, but with us was not particularly profitable.

Plenty of new main crop sorts are annually introduced, but as far as my experience goes those with sensational pods are failures. Prodigy is considered sufficiently good to deserve a second trial, and the same may be said of Sir F. Millbank. Duke of Albany, which may be described as a late form of Telegraph, is useful for exhibition purposes, but there are plenty of profitable older sorts. Gladiator is a capital Pea for small gardens, it being one of the heaviest croppers we have, and the pods fill well, the Peas, however, not being particularly sweet. Marvel, another fairly old 3-foot Pea, crops abundantly, and the Peas are sweet and tender. Those who have a weakness for the good old Champion of England should try Huntingdonian, this much resembling it, but is rather earlier, and scarcely so tall growing. Veitch's Perfection does well in most gardens, but latterly we have failed with it both for main or late crops, and its place will be taken by Carter's Anticipation. The latter ought to become very popular, especially among the proprietors of small gardens, as it only grows to about 3 feet in height, crops heavily, the pods fill well, and the quality ought to satisfy the most fastidious.

Our "sheet anchors" for main and late crops are a very old and distinct variety long grown by Mr. D. Thomson at Drumlanrig—one of the most robust and free-bearing sorts in cultivation, and Ne Plus Ultra. The latter is usually classed as most suitable for late crops, and it would be a difficult matter to name a better for the latest supplies; but why not have it earlier, or say in July? We saw about six long rows of this variety, commencing about the middle of March, and a long succession of the best Pea in cultivation is thereby obtained. Omega, a dwarf form of Ne Plus Ultra, is suitable for small gardens, but is not worth bothering with if space can be afforded the latter. Sturdy, which only attains a height of 3 feet, is of branching habit, is not much liable to mildew, crops heavily, the pods being densely packed with tender sweet Peas. Laxton's Walton Hero resisted mildew better than most sorts tried, and produces abundance of fine well-filled pods, the quality being first class. It is suitable for either main or late crops, as well as for exhibition. Laxton's Charmer I like very much. It is not of a sensational character, but the pods plentifully produced are of a dark green hue, and closely packed with green and fairly sweet Peas.—W. IGGULDEN.

THE BULB MITE.

MR. C. PRINSEP's note is worthy of consideration, and I hope to give his spirit of tar method of eradicating this pest a trial. I have observed the presence of a mite in bonemeal, but the question arises whether it is the same as plays such ravages amongst our Eucharis and other bulbs. It may belong to the same family, which I believe is a very large one. I do not believe the cheese mite would attack bulbs, and it is very possible that the one found amongst bones would not do so either. Some entomologists might do us valuable service if they could clear up this matter. I am not very well versed in insects, and regret any knowledge of the disastrous work of *Rhizoglyphus Echinopus*. I am not aware that this variety or any of the family to which it belongs attacks Alocasias and Marantas; such, however, is possible, but I have never seen these plants attacked at the roots by any insect pest.

Since my first notes were penned the bulbs that were severely reduced in size by the removal of several scales, and cutting away the base, have commenced to root freely again. This was done when the bulbs were green, without drying them, which should be done to harden and ripen them before subjecting them to such a severe operation. A portion of the stock is now being dried. Those that have been done will in another week be cut up for examination, and if they are free of insects the information shall be conveyed to the readers of the Journal, and the whole of our stock will at once be dried ready for cleaning by the method de-

scribed page 83. Now that the bulbs have commenced rooting freely again I have every faith that the insects can be destroyed and the plants restored to health in the space of a season.—WM. BARDNEY.

No doubt many of your readers would be filled with dismay upon reading Mr. Bardney's article (page 83) on the impossibility of eradicating the Eucharis mite from plants that have suffered from the ravages of this destructive pest. His view is not cheering, but I beg to differ from him, as I am one of the many who still cling to the theory that diseased plants can be restored to their former health and vigour, and I am inclined to think Mr. Bardney is not quite given up to despair, as I see he is making one more effort to eradicate it, which I sincerely hope will be successful.

It is now about seven years since I was first troubled with this destructive pest, the ravages of which are unfortunately so familiar. What brought it so before our notice was the refusal of a number of plants which had been repotted in fresh soil to make a fresh start, and at the same time losing all their foliage. I thought at the time it was a cultural disease brought about by excessive flowering, as for a number of years we had followed the practice of flowering them three and four times in the course of twelve months.

As I can find no signs of the presence of the mite amongst my plants, the method I adopted to eradicate it after several unsuccessful attempts by other methods may be of interest to some of your numerous readers. Some time in February last year I paid a visit to a neighbouring gardener, and found him busy overhauling and repotting a number of handsome healthy specimens which he had grown from a few bulbs I had given him a short time before the ravages of the mite were first observed in the plants under my charge. My attention was attracted by the strong odour of petroleum given off by the soil. Upon inquiry I was told the plants were syringed twice a week with water in which petroleum had been put in the proportion of a wineglassful to every gallon of water, and I came to the conclusion, either rightly or wrongly, that the freedom his plants enjoyed from the mite was due to the constant use of the oil. My first proceeding was to take off what little foliage my plants had and shake them out of their pots. When I placed them in a tub of lime and water prepared by putting in enough fresh burned lime to make the water boil, the bulbs were placed in when it had cooled to a temperature of about 90°, where they were left for about forty-two hours; they were then taken out and washed with a soft brush, and every particle of root was taken off. They were placed on a shelf in a vinery to dry, where they stayed about a week, and again placed in fresh lime and water for about fifteen hours and spread out to dry without being washed. They were next placed in 5-inch pots in soil mixed with some fine charcoal, as many bulbs as could be placed in a pot, taking care not to bury them, as I am of opinion the insects breed in the neck of the bulb. They were watered to settle the soil and placed in a frame over a brisk hotbed, where they soon began to push forth fresh roots and foliage. When the bed had cooled down they were taken into the stove. In about three months the pots were filled with good healthy roots. They were then potted into 7-inch pots, and I am pleased to say at present look very promising and healthy, throwing up an abundance of young foliage.—S. H., *North Lancashire*.

ALNWICK SEEDLING GRAPE.

As a practical Grape grower I beg to offer some remarks suggested by correspondence in the *Journal of Horticulture* about this Grape, and bad settlers in general, which may be useful to cultivators, and save many Vines from being uprooted.

Some time ago Mr. Thomson of Clovenfords suggested that someone should try the effect of syringing the bunches of Alnwick Seedling when in flower so as to wash off the gum-like drops which appeared to interfere with regular setting, and then to apply pollen from another variety of Grape. This experiment was tried by several skilful growers and the result was satisfactory. In some cases the operators first endeavoured to fertilise bunches with the aid of camels' hair brushes, rabbits' tails, and feathers, but these soon became unfit for use. They tried other bunches on the same Vine with the syringe, and after washing off the gum, and waiting for the flowers to dry, shook or blew some pollen over them. The process was repeated twice, as the flowers do not all open at once. Where thus treated the bunches set perfectly, but the berries were not so oval in shape as those in the engraving last week. The question of setting depends a great deal upon soil, situation, and temperature. In poor sandy soil all Grapes, even Black Morocco, the parent of Alnwick Seedling, set better than in rich ground, but the berries are then seedy and the pulp poor in quality. Highly manured soil, heat, and moisture cause the Alnwick Seedling and other bad setting Grapes to produce the honeydew in excess, and then syringing is necessary. In the glass corridors at the R.H.S. gardens, Chiswick, setting is effected by

throwing large quantities of pollen upon the Alnwick Seedling bunches when in flower, and there the plan seems to answer, probably because of the considerable ventilation, dry subsoil, and the large quantities of pollen from the adjoining Alicantes and Gros Colmans. Mr. Bell, who sent the Alnwick Seedling out, used a fox's brush for assisting the fertilising, and produced fine Grapes. Of course the point to be aimed at is to get pollen on to the stigma; and in all obstinate cases by syringing the glutinous dew-like fluid off, and then when nearly dry applying pollen, fertilisation is more easily effected than by smearing the flowers with a gummy feather or brush. Many Grape growers in their impatience have pulled up their Alnwick Seedlings, or grafted them with other varieties, but I think this is a pity, as it is a very distinct Grape.—JAMES BLUNDELL, *West Dulwich, S.E.*

ROSE-GROWING FOR BEGINNERS.

(Continued from page 147.)

PRUNING.

ONE of the most difficult questions to answer is the one so often asked, "When am I to prune my Roses?" I can fix the time exactly if anyone can tell me at what date the late spring frosts are going to depart in any given neighbourhood. The date for pruning is about fourteen days before that time, but as nobody can tell us that, I suggest that as a rule (to which late and early seasons will make many exceptions) for this cold south Yorkshire climate about the first or second week in April will be about the time most suitable.

The evil attending late pruning is, that if the tops of the plants are in leaf the cutting away of all these leaves must cause bleeding, which is decidedly detrimental. The other extreme—too early pruning—is about as bad. Suppose in early spring the young shoots have sprouted and are about 2 inches long, there comes a killing frost; the result is most disastrous, and the plants have to begin again to make fresh shoots, the bloom will be late, and most probably inferior in quality. If I saw that my Roses were so far advanced as to commence forming young leaves at an earlier date than I have given above, I should prune them, and so prevent bleeding, and take the risk of frosts. Further south and west of this situation the time of pruning will be much earlier; how much so must be left to the individual grower.

Why do we prune? "Because we are idiots," say some; "We should be idiots if we did not," say others. In fact there are few questions in connection with Rose culture which have been so much argued upon and written about time and again as this very simple one of pruning. It appears to me that those whose writings I have perused on this subject have generally been playing at cross purposes. The last little turn-up I noticed took place between two gentlemen in the pages of one of our horticultural papers—I read so many I forget which; but I remember that much good ink was spilled, and a great deal of latent heat brought out in the controversy. I forget the phases of the combat, but I remember the finish, which was, that the gentleman who was in favour of pruning, grew Roses for exhibition, while the other who did not prune "had to provide clothes baskets of Rose leaves for his young ladies;" I presume he was a head gardener. Now this just brings us to a point I wish to call the beginner's attention to. Do you want Roses, or Rose trees? It may be allowed as a general rule that you cannot have both—that is, I mean that you cannot have large bushes and cut exhibition blooms, or blooms which will make your friends' mouths water, from them. If you only prune lightly, and allow your plants to become large, you will have lots of Roses, but they will be small, such as you see every day. If, on the other hand, you prune severely, your Roses will be fewer, but larger and finer. For one little golden sovereign you can get twenty silver shillings, or 240 copper pennies. I once bought a grand plant of *Maréchal Niel* in a very large pot; the shoots probably would measure at least 30 feet, and they were covered with beautiful healthy foliage. When blooming time came it had only three flowers on it, but each was the size of a large Apple, and looked almost as firm, while the colour, shape, and scent were indescribable. Now had there been fifty flowers on the plant they would only have been of the ordinary size, and so it is with all Roses. (Please note that this small amount of bloom was not produced in the case of this *Maréchal Niel* by pruning, but happened naturally).

If any person visiting one of the great Rose shows, and seeing the magnificent blooms on exhibition there, should suppose that he can have nice bushes in his garden covered with flowers as fine as these, let him be quickly undeceived—he cannot. The plants from which such blooms are cut rarely carry more than one or two blooms at a time, and as a rule the first bloom of the season is the best. There are lots of exhibition varieties which are free bloomers, and if allowed these will give plenty of flowers, but the grower for exhibition prevents this by pinching off the young buds as soon as

they appear. This is disbudding, of which more anon. But to return to the question, "Why do we prune?" We do so to get fine blooms, to improve the appearance of the plant, and to remove old wood so as to make room for the new.

Pruning for the growth of exhibition blooms is not a very difficult business. Pruning to improve the appearance of the plant is—for beginners—extremely so. I said pruning for exhibition was easy; let me qualify that. It is easy inasmuch that we do not care anything about the appearance of the plant so long as we get a flower that shall be first-class. Where we have to form a plant, and have to consider the future shape, which depends so much on what we cut away or what we leave on, and where at the same time we wish for some blooms the first season, if not many, to reward us for our toil, the difficulties are very much multiplied. However, whether the subject be difficult or not, it should be thoroughly mastered; it will be so in time by every person who really intends to become a Rose grower, and who will to that end make use of the brain he has been endowed with. It must be thoroughly mastered, because without it no result, or next to none, can be obtained. We may dig, drain, manure, lime, plant, and attend in every other way to our Rose trees to the best of our ability, but without some knowledge of pruning we shall reap no adequate return, our toil will be useless, our labour in vain.

Mr. Wm. Paul speaks of pruning as the most important part of Rose culture, and I do not think I can quote a more practical authority on the subject. I advise throughout these pages that amateurs should grow dwarf Roses, and if this advice be followed pruning will be an easy matter, but many readers will prefer to have standards. These must make up their minds, either to a little study, or, if they like it better, to the partial spoiling of their plants for one or two seasons—through over or under pruning—or until they gain experience enough to enable them to do it properly.

Before we begin pruning in earnest we must have the necessary tools for the purpose, so we will discuss this part of the question first. When I began Rose growing I tried to use a knife, but my soil was so light that I nearly dragged the plants out of the ground in my efforts to cut off the branches. I had to try seissors, and becoming expert in the use of them, I have used them ever since. At the same time a good sharp knife makes the cleanest and closest cut, seissors being apt to bruise the wood and spoil the bud you wish to prune to. French secateurs, of which there are now many patterns, are very useful to cut thick branches or to remove old dead stumps, but after all a good deal depends on the taste of the individual. My pruning, being principally the cutting away of shoots just on the ground line, or a bit below it, very soon dulls the edges of seissors from the amount of grit and soil which they come in contact with; but many of these branches could not be cut so close with a knife except after much trouble in drawing away the soil. Again, in pruning the shoots of standards with a knife, one hand is required to hold the shoot steady, while the other wields the weapon. With the seissors this is not necessary. The beginner had better try both knife and seissors, and stick to that which answers his purpose best. I should advise one thing, and that is, that he should buy good tools, not cheap rubbish, made to sell—the buyer. In going over a large collection of Roses, the beginner will discover, whether he use knife or seissors, that either will make his hands sufficiently sore to cause him to remember his exertions for a few days afterwards. Thorns, too, play havoc with the back of the hand. These are most objectionable when they catch in the skin, break off, and leave just the very point deep in the flesh of the unfortunate operator. These little points have a nasty way of entering further and further into the flesh, the sharp end being inwards. After a long day's pruning the extracting of these little thorns from his hands affords a cheap and innocent, though somewhat painful, amusement for the beginner. "No Rose without a thorn," though not perfectly true nowadays, is quite near enough the truth to be decidedly unpleasant. A pair of leather gloves will, no doubt, prevent all the aforesaid unpleasantness, but they are horribly uncomfortable, and I, personally, prefer to do without them.

Now, just as there are four cardinal points in the compass by which mariners steer, so there should be certain similar cardinal points or rules for the guidance and direction of the beginner in pruning his Roses. I will try to indicate a few:—

1, The larger and finer the blooms required, the more severe must be the system of pruning. 2, Vigorous growers, if pruned too severely, will make strong shoots, but without bloom. 3, The weaker or smaller the habit of growth of a plant the closer it should be pruned. 4, Varieties which bloom freely require closer pruning than those which give naturally few blooms. 5, The riper the shoots the less excitable, therefore in these cases earlier pruning may be practised. 6, Those varieties which naturally produce

short shoots give the best blooms from buds near the bases of these shoots, therefore these sorts require to be pruned hard. 7, The wood which is left to produce blooms must be ripe; green sappy shoots are no good.

Now just let us dissect these points a little:—

No. 1, This seems simple enough—if we want a few fine flowers we are to remove in pruning nearly the whole of the plant, cutting it away nearly to the ground. But then we have No. 2 to contend with. If we cut in the strong-growing varieties too much they will send up a lot of beautiful vigorous shoots covered with very fine leaves, but no flowers. In the case of strong growers we remove the wood in another way, by cutting out a certain number of the shoots, cutting them clean away, but leaving the others longer.

No. 3, The weak and small-growing kinds should be cut in very close. In their case, treated so, they bloom profusely, and do not give us any trouble by sending up flowerless shoots.

No. 4, Many varieties give a flower on the tip of every shoot, or nearly so, while others will not give half as many. Others, again, form a cluster of buds on each single stem. It is obvious that each of these sections require different treatment in pruning.

No. 5, If the plants have been well ripened in the autumn



Fig. 27.

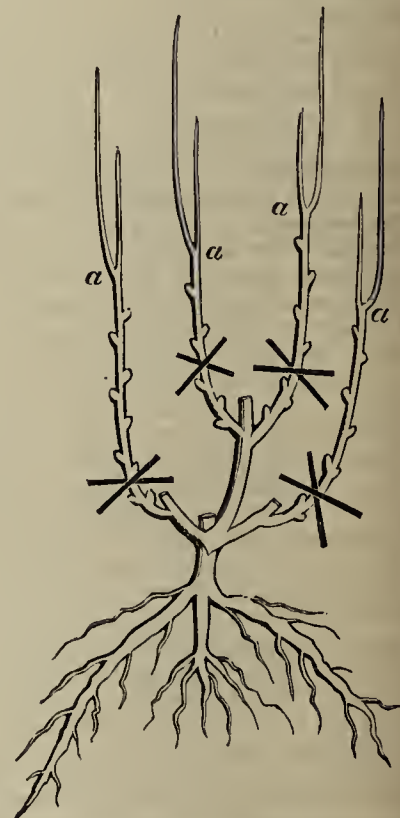


Fig. 28.

preceeding, the buds after pruning will not begin to grow so quickly; in other words, the plant will not be so easily excited, supposing a few warm days should follow the pruning, as if the shoots are soft and unripe. Well-ripened wood is darker in colour than unripe, and the interior of the branch, when cut, is found to be hard wood, with a very small centre of pith. Ripe wood, when pressed between the finger and thumb, is felt to be firm and hard, while unripe wood is just the reverse, soft and yielding.

No. 7, Most Roses—except Teas, which seem to grow always, except in winter—make two well-defined growths in the season, in spring and in summer. In the south and west of Eng'land, probably, in ordinary seasons all the wood would be so ripe that it would be immaterial which of these growths were left on the plants to produce bloom the season following. In any case, no matter in what part of the country the plants are growing, the spring growth must, of necessity, being grown first, and having the early summer sun and heat on it, be riper than the summer growth, which often extends far into autumn. In my own case—and I recommend all others who reside in similar cold neighbourhoods, where we have such short summers that the later growths are rarely ripe enough to trust to—to do as I do, and always, if possible, cut back to the spring growths.

There is one other rule to remember in pruning, and that is, to prune always to an outside bud—that is, to cut close to a bud which, when it grows and becomes a branch, will point outwards and away from the centre of the plant, the object being to keep the branches as far apart as possible, so that the leaves and branches shall have

the greatest amount of sunshine and air possible, without which the wood cannot ripen.

Now we come to our illustrations, and I wish to impress on my readers that these are not in any sense intended to be works of art, neither do they illustrate the habit or growth of any variety of Rose that I know. They are simply intended to instruct the beginner in certain points, and if they enable me to do that satisfactorily I shall be perfectly satisfied, and I trust my readers will be no less so. Fig. 27 shows a plant of vigorous growth as received from the nursery, except that I have made the central root longer than roots usually are on young plants. My object is to show how such roots, when they do occur, should be shortened. The root in question requires to be cut off clean at the mark x. The same marks apply to the branches, which are to be pruned to those points. It will be seen that the central shoot has been left longer than those at each side. Had this plant been a variety of smaller growth, the central shoot would require to be cut back as short as the other two. Fig. 28 shows the same plant a year older. The root, where cut, has thrown out a quantity of fibrous rootlets. The branches show where they were cut back to last season, and we can see the growth made since. Above that, growing out at the points A I have shown the summer or later growths. The crosses again show where the plant is to be pruned to. These two figures and these remarks explain the system of short or close pruning as applied to dwarf or ground plants. This system is the most successful where fine blooms and large healthy foliage are desired.

I have shown the buds on the illustrations. It will be seen on fig. 27 that I left two buds on each of the side shoots, and five on the central shoot. This is plenty, in my opinion, to leave on an ordinary plant of vigorous growth. The robust and small growers will not require to have more than two buds on each shoot; more may be left on in all cases if desired, and in that case I shall have something to say under the head of disbudding, in reference to their after removal.—D. GILMOUR, JUN.

(To be continued.)

DEEPLY PLANTED FRUIT TREES.

MANY fruit trees suffer more from being too deeply planted than from any other cause. They will grow, often bloom, and bear some fruit, but they are never healthy, and only thin crops are produced. Much of the fruit falls before it is well formed, and that which ripens is far from being perfect in size and flavour. I once had a young Peach tree that was planted in a very deep loam. It succeeded well for a time, and then began to fail. I was puzzled as to the cause, and lifted it, when we found that the roots were a very long way from the surface. It was replanted in another place where the soil was very shallow, and in three years afterwards it was a finer tree than at any previous time. Since then we have been working to get the roots of all our fruit trees nearer the surface, and the results are highly satisfactory.

Where trees have been planted for some time, and have their roots deep in the soil, it may not be convenient or desirable to lift the trees on purpose to place the roots nearer the surface; nor do I recommend this practice, as there is another way of doing it which is equally effective, and consists of moving away a quantity of the surface soil until the roots are reached. If a space 2 or 3 yards in length and width is cleared from each tree, and the soil taken away until the roots can be seen on the surface, the matter will have been accomplished, as the roots will be in a position to receive the benefit of the sun and atmosphere, and the trees will be as satisfactory as any which have been planted upon the surface. Top-dressings or mulchings are easily applied then, and if watering has to be done the recess formed by taking away the surface soil forms an admirable receptacle for it.

Many trees that are planted near the surface become in time deeply rooted, as the favourite plan of surface-dressing is not always taken advantage of by them, and very often repeated dressings are applied until the roots are far from the surface. But in such cases I recommend the removal of the top-dressings, and take them away to such an extent that the roots will at once appear near the surface. Almost every healthy fruitful tree has its roots close to the surface, and the conditions under which these luxuriate should be closely followed in trying to bring sickly trees into good health.—A KITCHEN GARDENER.

SPIRÆA JAPONICA.

THE light feathery sprays of this deservedly popular flower are always in great request during the spring months. No matter what kind of floral arrangements have to be carried out, a few pieces of Spiræa are always a welcome addition, and so suitable are they for imparting lightness and finish when used with good taste, that they may fairly claim to "hold the field" in that direction. The leaves are also most useful for mixing with cut flowers at a time of the year when well ripened Fern fronds are not very plentiful. It is no wonder, then, that a plant possessing so many good qualities should be generally grown and admired; and although it is one of the easiest plants to grow moderately well, yet I am convinced

that a little more attention bestowed on several important details of its culture would doubly repay the extra trouble by the superiority of the plants over those grown under ordinary conditions. I intend, therefore, to describe how the best plants I have seen were grown.

The two cardinal points to be observed in the management of these plants are—(1) to start with large well ripened crowns; (2) to give an abundance of water and stimulating food during the growing season. Where they are grown in quantities the plants will by this time be in various stages of development. Those that have just started into active growth will be at the right stage to receive the full benefit of special attention, provided the crowns were, when potted prominent and well ripened. I have found from experience it is better not to subject them to a high night temperature, one ranging between 55° and 60°, according to the weather, is the most suitable, but they will enjoy a rise of 15° to 20° in the daytime during bright weather, with an abundance of air and plenty of atmospheric moisture. No structures are more suited to their growth than vineries, from the time they are started till the gradual development of the Vine foliage necessitates the removal of the plants to houses that were started later.

Watering, as I have before stated, is a most important operation in the cultivation of these moisture-loving Spiræas, and no ordinary methods of performing it are sufficient to produce the best results. When they have started into active growth they should receive a good soaking once or twice daily, according to the weather, and by the time the flower spikes are seen pushing up amongst the foliage the pots will be crammed with roots. Then unremitting attention in supplying water, and constant feeding with liquid manure, must be the order of the day. Do not allow them to become in the least dry at the roots, but give water to prevent their getting dry. I have frequently watered plants four times a day in bright weather, but if saucers are placed under them it will save labour in watering; though care should be taken that the water does not remain in the saucers long enough to become sour, which would only happen in dull weather, or many of the bottom roots might be killed. Liquid manure should be given at one watering every alternate day, and I have found nothing better for the purpose than that made from cow manure, with the addition of a little soot.

As soon as the plants have flowered, those that have been forced early should be placed in cold frames to harden, but later in the season they can all be placed in the open air, where they should still be kept well supplied with water at the roots. When the flowering period of the whole stock that have been grown in pots is over, they should be planted out in ground specially prepared for their reception, by having it deeply dug, well manured, and worked into good friable condition. A border at the foot of a wall is a capital place for them, as they are less liable to be injured by spring frosts in such a position. Before planting, the clumps should be divided into pieces of various sizes, according to the size of the pots in which they are found most useful, making allowance for the size the pieces will grow to before being lifted. It is important to have them of the right size when potted, because if they have to be divided it spoils the shape of the plants, and sometimes results in the flower spikes withering before they begin to expand. Small pieces with two or three crowns at planting time will make nice clumps for use in 4-inch pots when the time for lifting arrives, which should be about eighteen months from the time of planting. Those that are flowered in pots should have one season's rest before being used in that way again. In planting, the crowns should be left slightly above the soil, so as to be exposed to the ripening influence of sun and air. Deep planting will never give satisfactory results with this plant. Neither should they be planted closely together, as they require plenty of room for their foliage to develop in order to produce good crowns. The best time for potting the clumps is November (when the foliage is dying down), using a compost of good loam three parts, and one of well-decayed manure. They can then be placed in cold pits, or plunged in ashes till wanted for starting into growth in a gentle heat, but home-grown Spiræas do not start readily into growth if taken into heat before the latter part of December. The above remarks may contain nothing new or startling, but they are intended to serve as guides along a well-tried path, which, if followed with care and attention, will lead to success in the cultivation of this popular favourite.—H. DUNKIN.

VIOLETS IN WINTER.

ON page 127 "J. L. B." is not too loud in his praises of the above, for certainly they deserve to be grown more extensively for winter flowering. Not only may they be grown in frames, but in pots successfully, and when grown in pots they are useful for house decorating. I have found Marie Louise and Neapolitan the two most useful varieties for frame and pot culture. Unexceptionable good plants may be obtained by lifting the runners, which are planted with the parent plant

in September for the purpose of flowering after the centre crown is past. They should be lifted in April, and planted on a north border, and treated in a similar manner to that advised by "J. L. B." until September, when plants that are required for pot culture should be lifted and placed in 7-inch pots. Those that are required for the frames should also be lifted and planted in their places at the same time, both receiving the same treatment as regards temperature. Those that are in pots should be plunged in ashes or soil in frames, and kept there until commencing to bloom, when they will be required for decorating or for the greenhouse. But in my opinion they scarcely need so much protection from the frost as "J. L. B." advises, for several years ago I had charge of a large number of them growing in cold pits, and during very severe weather, when the thermometer registered 33° of frost, they had no protection whatever, with the exception of mats thrown over the lights, and as soon as the severe weather was past they began to flower again. In cases where they are suffering from damping some charcoal pounded into powder and sprinkled into the crowns of the plants will quickly check it.—C. COLLINS.

ROSE SHOWS IN 1887.

I AM pleased to be able thus early in the year to give so full a list of Rose show fixtures for the coming season. In future lists I shall be happy to insert the dates of any other Rose shows not included in the present list, also those of any horticultural exhibitions where Roses are made a special feature of the show.

- * Ryde, Isle of Wight, Thursday, June 23rd.
- * Bagshot, Tuesday, June 28th.
- * Croydon, Wednesday, June 29th.
- * Canterbury, Thursday, June 30th.
- * Moreton-in-Marsh (East Glos. Rose Soc.), Thursday, June 30th.
- * Norwich, Thursday, June 30th.
- * Crystal Palace, Saturday, July 2nd.
- * South Kensington (N.R.S.), Tuesday, July 5th.
- * Ealing, Wednesday, July 6th.
- * Sutton, Wednesday, July 6th.
- * Bath, Thursday, July 7th.
- * Farnham, Thursday, July 7th.
- * Ipswich, Thursday, July 7th.
- * Diss, Tuesday, July 12th.
- * Edinburgh (N.R.S.), Wednesday, July 13th.
- * Helensburgh (West of Scotland Rose Soc.), Friday, July 15th.
- * Ulverstone (North Lonsdale Rose Soc.), Friday, July 15th.
- * Hull, Friday and Saturday, July 15th and 16th.
- * Birkenhead (Wirral Rose Soc.), Wednesday, July 20th.

Those exhibitions which are held by the National Rose Society or by Societies affiliated with it are distinguished by an asterisk.—EDWD. MAWLEY, *Rosebank, Berkhamsted, Herts.*



THE Council of the ROYAL HORTICULTURAL SOCIETY have definitely arranged with the Commissioners of the 1881 Exhibition for the occupation of the conservatory at South Kensington for the Society's meetings and shows, pending negotiations with the Royal Albert Hall Corporation. The entrance to the conservatory will be by the north-east orchard house in the Exhibition Road, and exhibitors' entrance on the east side of the Royal Albert Hall. Fellows of the Society will be admitted at 12 noon on presentation of their last year's tickets, and the public at 1 o'clock on payment at the door. Until further notice the price of admission to the public will be 1s. to the ordinary meetings and 2s. 6d. to the large shows.

— FROM the Cambridge Botanic Garden a LIST OF SEEDS has just been issued under the title of "Delectus Seminum quæ Hortus Botanicus Universitatis Cantabrigiensis pro mutua commutatione offert." It comprises fifteen closely printed pages of names arranged under the natural orders. About 1500 species and varieties are enumerated. The list has been prepared by the Curator, Mr. R. I. Lynch, and a list of plants which it is desired to add to the Cambridge collection is included.

— ROYAL WARRANTS.—We are requested to state that "Messrs. Little and Ballantyne, Carlisle, who on the 25th July, 1884, were appointed by Royal warrant nurserymen and seedsmen to Her Majesty the Queen, have just received a similar warrant appointing them seed merchants and nurserymen to His Royal Highness the Prince of Wales, dated Marlborough House, February 1st, 1887,

— TOBACCO CULTURE.—We are informed that "the Queen has been graciously pleased to command Mr. Beale of the firm of James Carter & Co., to dedicate his book on Messrs. Carter's experiments relating to Tobacco culture to Her Majesty."

— AT a meeting of the ROYAL BOTANIC SOCIETY, held last Saturday, the Hon. H. M. Best in the chair, a communication from Mr. H. M. Edwards was read respecting the "White Cushion Scale Insects," lately so destructive to the Orange groves in California and other countries, and the means and appliances used for their extermination. This peculiar coccus—*Icerya Purchasi*—which also attacks other crops, is supposed to have been introduced from Australia, and appears to be extending itself over the warmer parts of the globe.

— A GIANT PRIMULA—*P. IMPERIALIS*—is now attracting the attention of those who admire the numerous beautiful forms in that genus. Young plants are under cultivation at Kew. At a recent meeting of the Linnean Society dried specimens were shown to give an idea of its character. It is said to exceed 3 feet in height in Java, where it is found.

— "C. P." states that he has grown TOMATOES UNDER GLASS successfully and quite free from disease by employing wood ashes with bonedust as manure in a sandy turfy loam. He considers unsuitable manures or excessive supplies the chief causes of disease.

— THE annual meeting of the DITHERINGTON AND ST. MICHAEL'S COTTAGE GARDEN SOCIETY (Shrewsbury) was held last week, when it was stated that the result of the season's shows was a balance of over £20 in the Society's favour. A presentation was also made to Mr. Milner, who has been a judge at the shows since 1881.

— MR. WILLIAM PAUL suggests, writes "Duckwing," "that the cause of the HOLLYHOCK DISEASE may be the railroad pace in which it is grown into flowering condition. Hardly so. We find or found the same disease on other and uncultivated Malvaceæ (vide 'J. H.' May 28th, 1874, and July 24th, 1873). I have seen the common Mallow so affected as to look like orange-coloured patches on the grass, but not of late years, so I hope it may have worn itself out."

— WE regret to have to announce the death of MR. JAMES VAIR, who was for upwards of thirty years the highly respected and well-known gardener of Lady Dorothy Nevill at Dangstein, and more recently at Stillyans Tower, Sussex. For some time past Mr. Vair's health has been much impaired, and his suffering has lately increased very considerably, the cause being cancer in the bowels. He died at Stillyans Tower, Heathfield, on the 24th ult., aged sixty-two. We believe that Mr. Vair was born at Faldonside, near Melrose, where his father was gardener. He was also some time in the garden of Sir Walter Scott at Abbotsford, and Mr. Vair's grand uncle was the famous Tam Purdie, the witty faetotum of the great novelist. Mr. Vair may be said to have died at his post, for he was taken ill when engaged in cutting Raspberry canes, was carried into the house, and died shortly after.

— MESSRS. ARTHUR BOOTY & Co., Harrogate, have sent us samples of PATENT FERN TILES, which are successfully used for affixing to walls for "facing" them with Ferns. The tiles, which vary in size and length, somewhat resemble sections of water-spouting that is affixed to the base of roofs. These tiles, attached to firm walls and Ferns planted in them will undoubtedly answer the purpose for which they are intended, and a photograph of a Fern-furnished wall shows they answer it well. The tiles are practically imperishable and inexpensive.

— WE are informed that some changes have been recently made in the MANAGEMENT OF THE LONDON PARKS. Mr. Gibson, formerly of Hyde Park, and recently in charge of Regent's Park, has been appointed superintendent of Victoria Park, Mr. Jordan, who has held that position in the latter park, now taking charge at Regent's Park, with which Greenwich Park is also associated.

— "X." writes, "A few of our hardiest BORDER FLOWERS are now beginning to enliven the garden, the recent warm sunny days having helped them forward greatly. Winter Aconites are charming now, their golden flowers contrasting with pure white Snowdrops and the Spring Snowflake. A few Primulas, especially Harbinger, have some flowers expanding, with some of the early small-flowered Daffodils, and clumps of the various Hellebores are masses of flowers. Small handlights placed over these protect them frost and rain, and

can be readily removed in the daytime. The flowers come much better in colour and last longer in this way. *H. niger angustifolius* is our favourite amongst the white varieties, *H. purpurascens* being one of the best dark-coloured forms."

— MR. J. HIAM, Astwood Bank, writes as follows respecting CANKER IN APPLE TREES—"It may be of sufficient interest to unprejudiced readers and those who took part in the discussion on this subject last winter and previously, to record the fact that my trees which I have experimented upon remain perfectly healthy and free from this so-called disease. Three years ago worse specimens of trees it would have been difficult to find, although young and naturally healthy. The drainage remains the same, no lifting has taken place. Frost has surely been severe enough to try them this winter, following on one of the mildest of autumns, which induced sappy young wood to grow, and even trees to bloom until November. I have no more doubt about curing trees on my system of getting rid of insect parasites than I have of the sun rising in the morning."

— AN instructive lecture on the CLIMATE OF ENGLAND was given to the members of a political club, at their hall in Argyll Square, on Saturday evening, by Mr. A. W. Clayden, M.A., Fellow of the Royal Meteorological Society, and Science Master at Bath College. With the aid of illuminated maps and diagrams the lecturer drew attention first to the permanent regions of heat and cold existing on the globe. He then touched on the distribution of rain, pointing out why the rainfall in Britain was much greater in the hilly ranges of the western side of the island than on the eastern lowlands. The range and direction of the trade winds were clearly exhibited and explained, and special prominence was given to the main flow of the Gulf stream itself as distinguished from the Gulf stream and of the Gulf-stream drift which affects these northern regions. The formation and usual course and effects of cyclones and anti-cyclones were very clearly portrayed by Mr. Clayden, whose mastery of the subject and practice in teaching enabled him to deal with it in a popular and intelligible manner. The data furnishing weather forecasts were indicated, and the course of western cyclones traced from their origin on the Rocky Mountains, their passage over the American continent, and their route across the Atlantic. Having thus explained some of the broad features of climatic law as known to modern science, the lecturer showed that to the absence of overpowering heat in summer and to the presence of sufficient cold in the British winter to engender hardihood the people of this country owed that strength of character which enabled them to regard difficulties as things to be overcome. The comparative equability of our climate he regarded as the mainspring of the commercial advantages of Great Britain.

— A MUCH-PRAISED insecticide, BUHACH POWDER, employed in North America, is thus noticed by the *Florida Dispatch*:—"Buhach powder is made by pulverising the flower heads of a variety of *Pyrethrum*, *P. cinerariæfolium*. The flowers, which look much like Daisies, are gathered before they quite open, and should be dried under cover, as the heat of the sun seems to injure them. So does the heat of stoves, or other artificial heat. After drying, if only a small quantity is to be pulverised, the flower heads can be put into a mortar, and covered with a piece of leather, through which pestle can pass. After pulverising, the powder should be sifted through a fine sieve, and then, if not wanted for immediate use, put up in an air-tight glass fruit jar. Buhach is usually used in the evening or in the early morning, because the dew on the leaves will make the powder stick to the insects and kill them. The powder should not be used on rainy days, for it will wash off from the leaves and do no good. The insufflator, a little invention for holding in the hand and throwing the powder, is the best arrangement for applying buhach. The powder never injures the leaves of plants. It can be applied mixed with water. Prof. Riley says that in a mixture where 1-200 of a pound was used to the gallon of water the solution proved fatal to caterpillars. The water mixture is the most economical way of using buhach on plants, although, in order to prevent the too rapid evaporation of the mixture, add some glycerine, about half a gallon of crude glycerine being added to 40 gallons of water. This mixture kills both the red spider and the scale. The use of buhach in liquid solution in this country dates from 1880, when the United States Entomological Commission discovered that it could be so used, and the Government Entomologist, in his report for 1881-82, says that "the finer the spray in which the fluid is applied the more economical is its use, and the greater the chance of reaching every insect in the plant."

— "As far as I have been able to ascertain from personal observation and study of various books," says a writer in the *Indian Forester*, "the principal FOREST SPECIES OF JAPAN appear to be as follows:—Metz (Pinus Thunbergi and densiflora), both of which species appear to be very common throughout the empire. Hinoki (*Chamaecyparis obtusa* and *pisifera*), both of which species form extensive forest in the central and northern islands. Suji (*Cryptomeria japonica*), found planted throughout the length and breadth of the country, and especially near villages and round all shrines and temples. Keaki (*Zelkova Keaki*), kuri (*Castanea vulgaris*), much used for railway sleepers. Twenty-one species of Oaks, twenty-five kinds of Bamboos, thirty species of Cherries, many species being grown simply on account of their flowers. Numerous kinds of Azaleas, Camellias, and Laurels, besides various species of Elms, Maples, Deutzia, Hornbeam, Viburnum, Holly, Olive, &c. As regards characteristic plants of Japan, they may probably be enumerated as follows:—Azaleas, Camellias, *Cryptomeria japonica*, *Cydonia japonica*, *Chrysanthemums*, *Hibiscus*, the Japan shrub *Pæony*, the famous Water Lily (*Nelumbium surcifera*), *Asters*, &c. The principal forest trees common to Europe, which are mainly confined to the northern islands, are Elms, Beech, Larch, Aspen, Wild Cherry, Ash, Yew; whilst amongst shrubs and other plants, the following are most common:—Ivy, Honey-suckle, Lily of the Valley, Monkshood, Marigold, Wood Sorrel, Poppy, Chickweed, Dock, and Dandelion. Palms are by no means common, and are confined principally to the southern portion of the empire."

ANNUALS OUTDOORS.

THE season for ordering our yearly supply of these flowers, as well as the season for sowing them, is now at hand, and no time should be lost in making the necessary calculations, both as to the varieties and the quantity required before sending the orders to the seedsmen. Every facility is now at command for the rapid transmission of seeds, and unless at a particularly busy period little time is lost from the despatch of the order to the receipt of the seeds. Many of the catalogues issued by the leading houses are brimful of the information most needful to the amateur, minute as well as general instructions being given as to time of sowing, nature of the soil required, and the best situation. To the ever increasing number of growers this is a great boon, and if followed closely and attentively, each noting for himself the peculiar circumstances with regard to soil, situation, &c., under which he is placed, two or three years' experience will enable him to compete with his neighbours. Cottagers and small growers deserve all the praise they receive for their taste as well as their perseverance under the many difficulties they have to encounter in the course of the year, but in many instances they grow the same class of annuals year after year, the same race of Stocks and Marigolds, when for a few pence additions might be made annually. I am not finding fault with the cottager's dearly loved flowers, but I should like to see a greater variety and a little change occasionally. Keep to your Marigolds, Gillyflowers, and Canary Creeper, but lessen the quantity and make the variety greater.

All the seeds ordered should be marked hardy annual, though many of the half-hardy sorts will be found to germinate with care in the open ground. Avoid, however, those marked tender, for unless the grower possess a frame and hotbed, failure will result. In sowing care should be taken not to cover the seeds too deep, and it is always better to sow thinly than otherwise. Sowing in a circle or other system should be adopted throughout, the chance of mistaking the seedlings from weeds being avoided, and greater facility will be given for using the hoe freely. As soon as the seedlings are ready to handle they can be thinned to 3 or 4 inches apart. Nothing is lost, however, by giving plenty of room, admitting a free supply of air, resulting in sturdy well-branched plants. The greatest care should be taken in the matter of staking if such be required. Those of an upright habit will be all the better for support; but many annuals, such as the *Callichroas*, *Oxyura*, &c., have very weak stems, and, moreover, they are all more or less of a procumbent habit, and are far safer left to themselves than tied to a stake where every breath of wind will be liable to wrench it off.

To the flora of California, and the exertions of Mr. Douglas and others, we are perhaps more largely indebted than to any other country for the many bright and striking colours that delight us during the summer months. We can give by description but a meagre idea of their real worth, or the impetus they alone have given to hardy flower gardening within the last few years. Besides their use as border flowers, many of them are mere surface-rooting plants and excellent covering for permanent bulb beds, &c., where, if thinly sown, they do not materially affect the perfect ripening of the bulbs, and yield a constant supply of flowers throughout the summer. Almost every family of popular or cultivated flowers has been considerably re-

inforced by these annuals, and perhaps none so much as the large family of Compositæ. To begin with, we have the *Layias* or *Calli-chroas elegans* and *glandulosa*, the latter a pure white, flower excellent for cutting, lasting a considerable time in water; it produces an abundance of flowers from early July until September. *Oxyura chrysanthemoides*, golden yellow, edged with white, making an extremely effective border plant. *Lasthenia glabrata*, golden yellow, large, and very fine. *Leptosyne Douglasii*, *L. giganteum*, *L. maritimum*, *L. Stillmani*, and others. *Actinolepis coronaria*, also called *Hymenoxys* and *Shortia californica*, a charming dwarf and very free flowering annual, excellent for covering bulb beds, &c. *Madia elegans* and *M. sativa*, good for borders. *Calliopsis Drummondii*, *C. coronata*, *C. tinctoria*, and its many varieties, yellow, crimson, and velvety crimson, very showy; *C. cardaminifolia*, &c. *Thelesperma filifolium*, crimson, with a yellow edge, very graceful and beautiful. Among the Sunflowers, *Helianthus annuus*, *H. argophyllus*, *H. californicus*, and *H. cucurbitifolius* are perhaps the most distinct and beautiful, the latter a pretty small flower, suitable for stands, &c., golden yellow rays, with a black and gold centre, very effective.

The *Gaillardias* are handsome plants, useful for cutting, and almost indispensable for beds in the flower garden. *G. coccinea*, crimson; *G. lutea*, yellow; *G. Drummondii* nana, crimson and yellow; *G. Lorenziana*, *G. grandiflora*, and its varieties, notably *maxima*, *Roezlii*, and many others, are equally beautiful. *Zinnia pauciflora* and *Z. grandiflora* are showy. *Clintonia elegans* and *C. pulchella* are curious dwarf *Lobeliads*, yielding an abundance of pretty flowers. *Sabbatia campestris*, handsome large pinkish flowers. Among the *Campanula* allies we have *Specularia biflora* and *S. perfoliata*, both well worth growing, as they continue in flower all through the summer. Of *Gilias*, *Leptosiphons*, and *Nemophilas*, there are numerous species representing various shades of colour, and all highly ornamental. The variety in *Nemophila* are white, blue, jet black, purple, and violet, variously marked, and blotched. The *Whitlavias*, or *Phacelias*, are very handsome. *W. grandiflora* and the variety *alba* are both worth growing. *P. campanularia*, a comparatively new species, with intense *Gentian* blue flowers, is one of the best; it should be sown thinly in the open air along with the others, and thinned as required. *Collinsias*, such as *verna*, *C. bartsiaefolia*, *C. bicolor*, *C. grandiflora*, and *C. violacea*, are all worth a place. *Platystemon californicus* should be included, also *Poppies* in variety, notably *Papaver nudicaule*, which is not strictly an annual, but it flowers the same year as the seed is sown, and will give satisfaction thus treated. *Argemone mexicana*, *A. hispida*, and the various forms of *Eschscholtzia* are very handsome. *Calandrinias* and *Claytonias*, *Spraguea*, and *Portulacca* are all beautiful, but difficult to raise, especially the first and last, without some kind of frame. *Limnanthes Douglasii*, *L. alba*, and *L. rosea* give little or no trouble after the first sowing; giving an abundance of flowers all summer they are useful bee flowers, and as they yield a large per-centage of nectar they could be largely grown on bee farms.

The *Lupines* number sixty-three species, the majority of which are annuals, all handsome, and varied in their flowers and habit. *Godetias* and *Oenotheras*, as well as *Clarkias*, *Eucharidium concinnum* and *grandiflorum*, are well known, and largely grown in most good gardens. *Bartonia aurea* is very pretty, golden yellow, and somewhat resembling a large *Hypericum*. Amongst the best of those from other countries are *Silenes*, many *Stocks*, *Asters*, *Malope trifida*, *Hibiscus*, *Trionum*, *Troæolums* in variety, *Arctotis*, and the handsome *Sphenogyne speciosa*, *S. sulphurea*, and *S. anthelmintica*, *Helichrysums*, *Helipterums*, *Ammobium alatum*, *Acroclinium roseum*, *Iberis*, *Ionopsidium*, *Ipomæas*, *Linarias*, *Scyphanthus elegans* (a charming creeper or twiner), *Loasa hispida*, &c., *Cuphea silenoides* and *Zimapani*, *Lathyrus*, *Scabiosa atropurpurea* (various colours), *Verbenas*, *Nemesia floribunda*, *Nigella*, *Petunias*, *Phlox Drummondii*, and varieties. Sweet Rockets, *Saponaria calabrica*, Sweet Sultan, and *Dianthus chinensis*, with many others, are all worth attention. A good guide to beginners in sowing seeds is to cover them to about their own depth with soil, except such large seeds as Peas, *Ipomæas*, &c., which may be placed deeper as a safeguard against vermin.—M. S.

ON SOILS.

SOILS are variable; the prevailing one is loam, a Nature-formed and enriched surface, resulting from the disintegration of its constituents by atmospheric agencies and the decay of preceding vegetation. This surface is usually of a yielding texture, the depth varying with the extent of the amelioration and accumulation of debris. Good loams are naturally fertile, in others there is a preponderate of sand; gravel is largely mingled with another, flints are plentiful in loam of the limestone formation. Clay is a prevailing character of some soils. Alluvial soils, bog, and peats all or most support vegetation of some kind as the result of a long course of subjection to atmospheric influence, aided by the roots of present or

preceding plants in decomposing stubborn substances. The understrata may be sand, gravel, limestone, sandstone, or other description of rock, clay, or a compound of clay with gravel, sand, marl, &c., and *vice versa*. The geological character of the formation need not be discussed, but whatever that may be its influence is very pronounced in the vegetation. Every splinter of rock or pebble is contributory to the soil of silica, lime, potass, phosphates, &c., some or perhaps all those, and it is not necessary, as was at one time supposed, that they must be exposed to light, air, and moisture, as the roots of plants descend to a considerable depth and possess the power of abstracting such substances. This disintegration by the roots is one of the most important causes of fertility. The luxuriance of vegetation is usually proportionate to the depth of the soil. Some soils have a thin crust, a few inches only of the surface soil mellow and easily worked, but are nevertheless highly productive, although the pan is a stubborn clay, or it may be a thin crust of calcareous loam overlying lime or chalk, or a few inches of soil intermixed with the shingle of the oolitic formation, or a thin crust of sandy soil, as much sand as loam or available matter, or mere brash, a compound of gravel, sand, and earth. There may be too much lime in some soils for the satisfactory development of certain plants and too little in others. The best soil is that which contains some part of everything without a great preponderance of any one particular substance, as to afford support to a great variety of plants.

Let us glance at the soil of gardens. All or most are loams—sandy loam, clayey loam, or calcareous loams. They are loams perhaps by a long course of subjection to atmospheric and plant disintegrating and decomposing influences, age after age, or through cultivation long pursued. The sandy loams are rich in silica (there is generally a sufficiency of lime), but they are poor in humus, phosphates, and alkalies. Clayey loams usually have plenty of potass, sulphur, salt, and phosphate, but in lime and silica there is an astounding deficiency. Calcareous loams are deficient of humus, salt, sulphur, alkalies, and frequently of silica, but absolutely rich in lime and phosphates. According to this the sandy loams would not suit the Pea, Bean, Potato, Artichoke (Jerusalem), Carrot, Parsnip. They ought to have good loam or clay; but it is not in gardening what crop the soil is capable of producing, but rather what it can be made capable of producing by cultivation. According to analysis we ought to have a preponderance in the soil of potass and phosphates for Peas and Beans, and all of that order. In Brassicas, which include Turnips, lime and sulphur should preponderate in the soil, fruit being highly charged with alkalies. Our soil should accord, and for stone fruit lime is required, and this, I believe, is the only inorganic substance considered essential by nine-tenths of gardeners, and some do not afford that. It is all-important with garden practitioners that they have abundance of manure. It is the only substance used in gardens worth taking cognisance of. Tree, lime is sometimes used, and fruit and plant composts have particular attention in respect of the ingredients, but the varied artificials are only employed as auxiliaries in the production of flower, fruit, and vegetable crops. The grower for market acts much on the same lines as the private grower. Where the farmer uses a hundredweight the market gardener employs a ton of solid manure, and his outlay in soot exceeds that of the farmer for artificials. The fact is this, the market and private gardener depends on organic matter, adds to the staple whilst enriching the soil, but the farmer replies to the demand of the soil for plant aliment by an expenditure on artificials that in respect of organic matter are evanescent as regards the current and leave nothing behind for succeeding crops, except of an inorganic nature of no benefit whatever to anything but a crop that may come upon the land some time. I by no means desire to disparage the application of the inorganic substances to soils that are found deficient in them by careful analysis, but the use of artificials of an inorganic nature on land upon no principle whatever is simply a waste of resource.—G. ABBEY.

(To be continued.)

HABROTHAMNUS ELEGANS.

I AM surprised this plant is not more generally grown. It should be in every greenhouse and conservatory, as it is very easy of culture, and with ordinary attention will produce its showy flowers by the armful in January, February, and March. The flowers are produced in bunches at the end of every shoot. They are bell-shaped, droop gracefully down, and of a beautiful crimson colour. They are exceedingly showy on the plant, and when cut and arranged in glasses they have a charming effect. They would be valuable flowers at any season, but in the earliest of the spring months, or indeed before winter is over, an abundance is very acceptable. The plant is a very strong grower. If planted in a bed and allowed to grow freely it would soon cover a great space, but throughout the summer it will bear any restriction, and nothing suits it better than to cut it in until late in autumn, then allow every shoot

to grow, when all these will bloom from the first week in January until the end of March.

It may be trained up a pillar under a roof, or over a wall. Recently when I cut as many flowers from a pillar plant as I could well carry, and that too from a cool house, I could not help thinking I was dealing with one of the most useful of our indoor spring flowers. The plant is easily propagated by cuttings in spring, and it may be planted out now or at any time in a substantial mixture of loam and a little manure. It can be grown in pots, but planting out is the better plan for producing abundance of flowers. A friend who owns a small lean-to vinery with Vines on the roof and a miscellaneous collection of plants underneath, fancied a *Habrothamnus* two or three years ago. I gave him a little plant, which he placed out under the shade of the Vines and on the back wall, and it has done better there than any other he ever tried in the position; indeed its success astonishes me and indicates it may be safely planted in a shady position and at a distance from the glass.—J. MUIR.

ZONAL PELARGONIUMS FOR POT CULTURE.

ALTHOUGH the Zonal Pelargonium may not be so generally met with as a few years since, and has no society now to foster its popularity, improvement has been so rapid in this type that scarcely a variety which was exhibited at the latest show of the defunct Pelargonium Society would pass muster with seedlings raised within the last few years by Messrs. Pearson, Windsor, Miller, and others. We have admired the gorgeous stands exhibited at the London shows by Messrs. Cannell, and "taken stock" of the latest at the "Home of Zonals," Swanley. We also grow a good collection, and will venture a few cultural notes. For conservatory and other decorations the Zonal Pelargonium gives a brilliancy of colouring scarcely to be found in any other class of flowers; but to fully appreciate the beauty of individual trusses and pips, it should be specially treated as a florist's flower. To this mode of cultivation the following remarks will apply.

An ordinary greenhouse is suitable to their growth, and the present a good time to make a beginning. Plants in pots of the best kinds can be purchased for a moderate sum. Repot at once into their largest pots, which should be the useful 48-size, or 5-inch. Place over the hole of each a single crock, and finish with an inch or so of quarter-inch bones. We have found this a capital manure for the Pelargonium; the roots ramble into such drainage, and by the health of the foliage and sturdiness of the growth one can tell it is enjoyed by the plants. Pot firmly in a compost of two-thirds loam, the other part leaf soil; add to a bushel of the same a little sand and a 5-inch potful of bone dust or Jensen's fish manure.

Once stopping will generally be sufficient to make the plants bushy, but should any shoot afterwards appear more precocious than its fellows take out the top. To get the plants in a strong condition capable of bearing fine flowers I would take away the first trusses that show. When the pips are fully open, with a pointed stick drop a little floral gum into the centre of each, an operation which demands some care so as not to disfigure the petals.

Being in small pots, a plentiful supply of water must be given, and to maintain vigorous plants manure water will be required occasionally. When in bloom a slight shading during the hottest part of the day will improve the flowers and assist their lasting qualities. The following selection well grown will not fail to please:—In crimsons, Mr. H. Cannell and Metis are large and very fine; in shape the latter cannot well be surpassed. Plutarch and Ajax, both scarlets of superb quality. Swanley Gem is a gem, perfect in truss and pip, while the colour is a most beautiful shade of salmon scarlet. Favourite, cerise, fine pipe and truss. Constance, the "pink" of perfection. Lady Reed, white, with scarlet centre, very fine. In salmons it is hard to choose between Lady Chesterfield and Fanny Catlin; the former is the deepest in colour, and we select it, but both may be beaten by a splendid variety seen at Swanley, Lady Rosebery. Norah is a beautiful flower, blush white in colour, and in shape perfect. Queen of the Belgians, the best white, and Sophie Birkin, a mottled salmon of faultless shape, and a most attractive variety.

Another twelve little, if any, inferior to the above are—Meteor, very dark; Mrs. Gordon, crimson; Lord Chesterfield, magenta; Golden Glory, orange scarlet; Kate Greenaway, pink; Fanny Catlin, salmon; Mary Caswell, blush white; Edith Pearson, rosy red; Ida Walter, crimson; Lizzie Brooks, rosy scarlet; Lord Rosebery, cerise; Edith George, bright pink.

A dozen fine double Zonals are the following:—Spade Guinea, orange scarlet; Paul Charbonnier, fine scarlet; F. V. Raspail, deep scarlet crimson; Australian Gold, cerise, tinted orange; Lord Derby, rose; Emile de Girardin, light pink; Madame Thibaut, pink shaded purple; Grand Chancellor Faideherbe, dark crimson; Aglaia, purple; Belle Nanceinne; and James Murkland, mottled salmon, both fine; Le Cygne, pure white.—H. SHOESMITH, *Saltwood, Hythe, Kent*.

AMASONIA PUNICEA.

THIS is unquestionably a very beautiful plant, and bound to become popular for the embellishment of our stoves after Poinsettias, Euphorbias, and other similar plants are past. We obtained a plant early last spring and took a cutting from it some time afterwards, and had in autumn two splendid plants in 6-inch pots. Not knowing exactly the treatment required, they unfortunately were checked by too low a temperature, and by receiving too much water at their roots. The plants were placed with a number of Poinsettias and other winter-flowering plants that were being retarded as long as possible, and this treatment proved too cold for the *Amasonia*. When removed to more heat one plant flagged and could not be induced to rise again, so we at once cut it up for the purpose of raising a stock for another year. I am acquainted with one or two who have lost their plants through failure at the roots, which undoubtedly is due to too much water.

The plant cut up was shaken out of the soil, and the root portion with a pair of eyes plunged into cocoa-nut fibre refuse in the propagating box, and it quickly began to make fresh fibrous roots and to push two growths. The remaining portion of the stem was cut, and each portion inserted singly in small pots. Each portion contained two eyes, for the leaves are opposite, and there is an eye in the axil of each. These eyes or joints were pegged, so as to secure them into the pots, and they are all in that stage that we are certain they will form roots. Now it is possible that only one eye will break from each, and if so it will be allowed to grow until it is sufficiently long to be taken off for a cutting. This plant evidently strikes very freely from young shoots, and there appears to be no difficulty with eyes. If the joints only produce one shoot it will be taken off, and the other will then be compelled to push, and thus form a plant with a single stem. This I know will take place, for our first plant had been raised from a joint pegged in a pot, and it was just making its first shoot when it was received. When long enough for a cutting it was taken off, for we had previously observed it possessed a dormant eye, and after the top was removed it quickly started into growth.

It appears to be a plant that will be easily propagated, and when once its culture is thoroughly understood there will be no difficulty in maintaining a good stock of young plants annually. It is one of those plants that I believe will be grown in quantity, and I intend to make the most use of the plants here for stock purposes this year, even if we only allow a few to produce their brilliant bracts of rich crimson and creamy white flowers beneath. During the summer it requires plenty of heat, a moist atmosphere, and abundance of light. Our plants were arranged close to the glass, which appeared to suit them admirably. It might be advantageous to many, if cultivators who have grown this plant successfully would give their experience in the *Journal*, and the lowest temperature they have found it would endure without injury during the autumn and winter. Partial failure during the past year has certainly taught us how to cultivate this plant in the future. My experience leads me to the conclusion that it should not be subjected to a lower temperature than 60° to 65°, according to external conditions, until its bracts are produced, and whether it will bear without injury a lower temperature after that by being kept somewhat drier at its roots, remains to be proved. If others have tested this matter the information will be gladly welcomed, for if it will stand in conservatories where the temperature ranges from 45° to 50° at night during the time it is in full beauty, its value as a decorative plant will be materially increased.—WM. BARDNEY.

[This plant was figured in the "*Botanical Magazine*" for January this year under the name of *Amasonia calycina*, which Sir J. D. Hooker has determined is its correct name. It is said to differ from the true *A. punicea* in the bracts and calyx.]

"CHRYSANTHEMUMS AND THEIR CULTURE"—ANSWER TO MR. GARNETT'S CRITIQUE.

ALLOW me in the first place to thank Mr. Garnett for the tone he displays in his critique on my book, which I hope to answer in the same spirit, as honest criticism often leads to improvement. There has been a vast increase in the number of growers of the Chrysanthemum during the last three or four years, therefore the smallest piece of new information on the subject will be welcomed by all, and by beginners especially. The latter I had particularly in my mind when I described my experience, my object being to detail cultural instructions as plainly as possible. I did not employ "scientific" terms, because I thought them unsuited for those for whom the book was intended. At the time the articles were appearing in the *Journal of Horticulture*, and since their publication in book form, I was led to believe by the numerous letters I received from all parts of Great Britain and Ireland that I had succeeded in doing what I had in view—viz., being explicit in the necessary details of culture. I could point to many men, and these situated hundreds of miles north of Swanmore, even much farther north than Mr. Garnett's locality, who had not previously grown Chrysanthemums in an exhibition manner, but by following the directions given in the *Journal* they were enabled to grow the plants successfully, and with the flowers produced take leading positions at some of the best shows in England, and they assured me it was purely by following my advice that they were so enabled to succeed. This I consider the truest test of clearness of detail contained in my instructions, but judging from what Mr. Garnett's attempts to point out I am a long way from gaining the end I had desired, What I wrote was

from my own experience and a close observation of other people's practice in many parts of England, therefore I was not depending entirely upon my Swanmore experience for my knowledge. I have been acquainted with the leading growers of Chrysanthemums for the last eleven years, and during this time I have had abundant opportunities of testing the best methods of detail in the various stages of growth.

Some parts of Mr. Garnett's critique do not require an answer, no good could possibly accrue from it. He criticises entirely from his own point of view as applicable to his own district. I wrote my book intending it as a general guide, and not for one place. I admit that Swanmore is well situated for the culture of the flower, but I do not agree with Mr. Garnett that the greater number of gardeners have to practise within the smoke zone of large manufacturing towns. I take the Liverpool and London district growers as examples; the leading ones in both those parts are not much hampered by smoke, I fancy. Certainly there is more than at Swanmore, but not to an injurious extent. I have previously stated that I did not make guesses, as Mr. Garnett says I did, as to the dates suitable for northern growers, I can assure him they were taken from personal observation. The controversy he alludes to in the Journal on the bud question did not prove I was wrong, for we had no evidence that my advice had been faithfully followed in all instances. I still say that if the plants are treated as advised in all stages the buds will come at the time we want them, in spite of Mr. Garnett's assertion to the contrary; but the plants must have the necessary attention from the time the cuttings are inserted and during the after stages of growth. Many collections of plants, I am afraid, are often spoiled during the busy spring and summer months when other work presses heavily.

With regard to the time best suited for striking the cuttings, Mr. Garnett is very fortunate if he has had no experience with "bud-producing propensity." If he had been a large grower, I fancy he would indeed be lucky if all the cuttings he inserts go right away into proper growth. At the present moment we have sucked cuttings of Meg Merrilies and Empress Eugenie, for instance, that are showing flower buds. I mention this to show that Mr. Garnett's experience avails us little. In my remarks upon the time the cuttings should be inserted, I said there is no hard-and-fast line as to date, circumstances must guide the grower somewhat. Let me cite one instance. If the stock of any particular variety consisted of a very few cuttings, and these were likely to become too tall through being drawn weakly or other unforeseen occurrences; instead of allowing them to grow so tall, I should take them off and insert them a week or two before the stated time (December 10th). Most growers to my knowledge do not commence propagating much sooner than about the time stated.

Referring next to the remarks where Mr. Garnett quotes the words "some growers say that late propagation reduces the height of the plants. This is the case in some instances." My answer to his query—why in some instances?—is simply that the plants have not had time to grow to their full height owing to their late propagation and the time lost which they would have had had striking the cuttings earlier been practised. He next asks what degree of height is essential to produce blooms of the best quality? My answer is, The natural height, so to speak, of each variety prior to the production of the crown bud. This is varied by the growth of the plants caused by loose potting, position in which the plants grow, whether they were allowed to become drawn weakly in their younger stages of growth. A variety of causes will alter the heights in the hands of different growers, but I will name one variety—for instance, Princess of Wales. Owing to the causes above stated this may not suit everybody, but it will be approximate. From 5 to 7 feet high is a fair height for this variety. He next takes exception to the words, "I have not yet seen, save in an exceptional case or two, blooms of the same quality produced on dwarf plants through some unaccountable reason." He asks, Why unaccountable? Now, here I am unable to answer his query, but I have seen two plants of the same variety growing side by side under exactly the same conditions as to propagation, soil, and all other cultural details; still, one plant grows 6 feet high, while the other attains the height of 8 feet, but both produce blooms equal in quality. This is why I said some "unaccountable reason." Perhaps Mr. Garnett will enlighten us on this point. It is easy to ask the question, but not so easy to answer it.

My next answer is that it is not more unaccountable for dwarf plants to produce good flowers than it is for tall plants to produce poor flowers. I have many times seen tall plants produce the reverse of good blooms when all conditions appeared favourable to their well doing. This I must class among the "unaccountables." If this were not the case, and every plant could be relied upon to produce good blooms, growers would not require so many plants to depend upon for the supply of the finest blossoms, for in some instances a few blooms of exhibition quality only are produced on a large number of plants. The risk, then, of winning prizes would be reduced to a minimum. My experience differs from that of my critic in looking over collections of Chrysanthemums in bloom that dwarf plants do carry finer flowers than taller plants of the same variety. In my case it is the reverse, for often the blooms on dwarf plants have, at the first glance, seemed larger and better, but upon a close examination they were found to lack the most essential point—viz., depth; they might possibly be more inches in diameter. Mind, I am speaking in a general sense. As before stated, some dwarf plants do produce good blooms.

The next reference is to Mr. Garnett's remarks as to the dwarf plant of "Peter the Great." He asks, What influence has the height of the plant on the size and quality of the bloom? His answer is, Little or

none; but mine is that were it not taken from a plant somewhere near the natural height required of the variety to produce such blooms as the aim is; that were the cuttings taken from all dwarf plants, the certainty of having the wished-for flowers is considerably reduced; that is what influence it has in this case. I could take a cutting of the same sort, which should be 12 inches nearer the point where the last bud was formed, and I have no doubt this plant would attain the height assumed—viz., 20 inches, and the flower would be much smaller than the one on the 8-inch plant, but that would not be following the advice I gave, p. 45 of the book, therefore Mr. Garnett's argument is all in my favour on that point. Certainly anyone setting out with the idea he suggests will be sorely disappointed. It is the insertion of the cuttings on the date when they are ready upon which success depends, and not upon the theory of other methods. The approximation as to time will be found to come very near, if not quite, for all localities, even if it does not fit Mr. Garnett's district in this one instance. The instructions given on p. 47 are quite clear to produce the desirable dwarf plant, that being the object of that chapter. It seems absurd to compare such plants in their relations to height and quality of flowers with those grown for another object. It seems Mr. Garnett grasped this little plant to substantiate his argument that height has nothing to do with quality of flower. I do not agree with Mr. Garnett when he says it is essential that a person must be master of the cause of the puzzling complications in the bud setting. If he expects beginners to master all this before he can grow the flower, it strikes me he will have some time to wait. This can only be had by years of practice.—E. MOLYNEUX.

(To be continued.)

WARWICK CASTLE.

WARWICKSHIRE possesses a combination of historical interest and natural beauty such as few other English counties can equal, and perhaps none exceeds. Taking Warwick as a centre, Kenilworth, Stratford-on-Avon, and Coventry are easily reached, and in all the tourist finds a host of historical memories, relics of a past magnificence or stately grandeur unknown to the present age. A most charming sylvan scenery is also characteristic of the county, the wealth of arboreal beauty presenting a striking contrast with the comparatively bare extent of land in the eastern portion of the kingdom. From any moderate elevation views are commanded of a vast park-like landscape, gently undulated, never bold, but exquisitely beautiful in the fresh verdure of spring or the varied hues of autumn. Many fine estates are scattered over the county, and a horticulturist who has the opportunity of enjoying a few days holiday can spend the time most profitably in a visit to Warwickshire. In such a journey undertaken last autumn the first establishment *en route* was Warwick Castle, to which the following brief notes are devoted, but which cannot do full justice to either its historical or horticultural interest.

Warwick Castle is one of the best preserved memorials of the feudal period that can be seen in England, and abundant evidence remains to prove what a powerful stronghold it was when "might was right." Unlike crumbling Kenilworth, Warwick does not seem to have even reached its first period of decay, and after braving the vicissitudes of many centuries it is now in a venerable but majestic old age. With the massive walls and towers time seems to have dealt gently, and we are delighted with an antiquity that has not been spoiled by inconsistent attempts at modernisation such as too frequently detract from the charms of similar buildings. The Castle is approached by a road cut deep in the solid rock, and curving round gradually conducts the visitor to the chief entrance, on each side of which are the noble towers commanding the approach. Guy's tower is 130 feet high, and from the top of this an unrivalled view can be obtained, the classic Avon passing the base of the Castle walls and winding its way thence through a densely wooded country, with here and there a bright green meadow as a break in the luxuriant tree growth. We look down upon the courtyard with its remarkable lawn, like fine green velvet, so level and dense is it, and beyond we see the wonderful Cedars that have attracted so many admirers of tree beauty to Warwick. The illustration (fig. 29) represents the Castle as seen from the river that is to the east, the two towers being partially concealed by the trees.

Of the Castle itself little need be here said except that it is crowded with historical interest of an exceptional character, from the dungeon to the great hall and drawing rooms, all of which, by the liberality of the Earl of Warwick, are usually open to the public. They well repay for a visit, and tourists flock thither in great numbers during the summer months. We were, however, especially desirous of seeing the gardens and pleasure grounds, together with the Cedars already mentioned, which alone are worth a long journey. Fine specimens of *Cedrus Libani* are by no means scarce, but these at Warwick are magnificent in the extreme, and must be ranked amongst the oldest and most handsome in cultivation. There are great numbers of trees of various sizes, but several near the Castle and close to the bank of the river are the giants, the stems at 1 foot from the ground measuring 23 to 28 feet in circumference, the height about 70 feet, and the branches extending along the ground 14 yards from the stem. Some of these are a forest of stems, dozens of great limbs shooting upwards, each large enough to make a good sized tree, and the appearance of these huge specimens viewed from below is very imposing. In Strutt's "Sylva Britannica" it is truthfully remarked that "there is something in the air of the Cedar remarkably indicative of its comparative immortal nature. The foliage is very beautiful, each branch is perfect in its form; the points of the leave

spread upwards into little tufts, feathering the whole upper surface of the branch, and drooping in graceful curves towards the extremity, whilst the colour exhibits rich green, harmonising between the blue tint of the Pine and Fir and the Larch, and the gloomy one of the Cypress."

As to the age of the Warwick trees there does not seem to be any exact information. It has been rumoured that they were brought over by the Crusaders, and if this were true they would be much the oldest in England, but probably it is not quite the fact. In any case they must be of great age, and must be included amongst the oldest living trees in this country. It is difficult to estimate the age of the Cedar; in some situations it grows to a great size with extraordinary rapidity, as, for example, the fine specimen at Goodwood Park, which was planted in 1761, and when measured in 1881 it was 65 feet high, the principal branches extending to a length of 50 feet from the stem. When visiting the celebrated Cedar grove on Mount Lebanon Sir Joseph Hooker estimated the oldest trees at from 800 to 2000 years old, and though the rings in some branches were carefully counted no nearer estimate could

and can be seen from the Thames Embankment, but it has lost all its lower branches, and consequently much of its beauty. At Syon House, Gunnersbury Park, and Chiswick, fine specimens can still be seen, but owing to the horizontal habit of the branches they are often injured by winds and snowstorms. The sudden and heavy fall of snow last December has proved most disastrous, and the damage caused at Warwick as elsewhere is deplorable. When one or two large limbs are broken from these old specimens their beauty is effectually destroyed, and it is rarely that subsequent growth can repair the mischief.

The pleasure grounds at Warwick occupy about 40 acres well planted and excellently kept. Besides the large Cedars named there are many others of smaller dimensions, yet trees of good size, from 10 to 14 feet in circumference. Amongst other notable trees is a superb example of *Wellingtonia gigantea* planted about thirty-six years ago. It is 68 feet high and feathered to the ground, the stem at 4 feet from the ground being 6 feet in circumference. Chestnuts thrive luxuriantly, one grand tree having a stem 16 feet in girth at 4 feet from the ground, and branches extending 20 yards from the stem. They have drooped to the



Fig. 29.—WARWICK CASTLE.

be made. The first trees seem to have arrived in this country during the seventeenth century, for although it has been said that Evelyn did not mention the Cedar in his "Sylva," he distinctly states in the third edition, published in 1679 (p. 125) that he had received seed from the trees on Mount Lebanon, and that he had "frequently raised it by the seeds, which I set like Bayberries." He commends it strongly to the attention of planters, and that the wood should be more extensively employed in building and for furniture, "to reform the malignity and corrosiveness of the air, and even preserve the whole city, as if it stood amongst the spices of the Happy Arabia."

A Cedar at Bretby Park, Derbyshire, is said to have been planted in 1676, but according to Strutt the celebrated tree at Enfield was planted by Dr. Uvedale soon after 1660. Concerning this in 1830 the following particulars are given in the "Sylva Britannica"—"The Cedar which is now perhaps the largest in the kingdom was put into the ground by Dr. Uvedale, a plant brought direct from Mount Libanus. In 1779 it measured 14 feet 6 inches at the base and 45 feet 9 inches high, the upper part having been broken off by a high wind in 1703. The principal branches extended from the stem, from 28 to 45 feet. In 1821 it was 64 feet high." In the same work an illustration of the two Cedars in the Apothecaries' Society's Garden at Chelsea is given, and it is remarked that they were planted 1683. One of these still remains,

ground, formed roots, and produced a number of fine trees round the parent, the effect being very curious and suggestive of the trees that frequent tropical swamps. *Catalpa syriaca* is also represented by a handsome tree that flowers most abundantly, and many other beautiful trees or shrubs could be named, all of which seem to be thoroughly at home.

Near the orangery, which contains the far-famed Warwick Vase, are some unpretentious flower beds that were tastefully planted last autumn, and in an establishment of this kind commendable care is needed to avoid the introduction of any incongruities. From this point a delightful view is obtained of the Avon, a broad stretch of turf bordered by trees and sloping down to its bank, a picturesque vista of the opposite bank and a distant hill being also gained. This is a charming piece of landscape, and it would be difficult to add to its beauty in any respect. A short distance from the orangery are the kitchen garden, fruit and plant houses, which, with the pleasure grounds, are under the efficient superintendence of Mr. A. Christie. The houses are in several ranges well suited for the purpose as regards construction, but not placed in a favourable situation. Mr. Christie, however, grows both plants and fruit well under somewhat difficult circumstances, which is all the more to his credit. The kitchen garden is well cultivated, and at the time of my visit was stocked with the best vegetables.—LEWIS CASTLE.

NEW PLANTS OF 1886.

(Continued from page 158.)

Inf., Inflorescence.—*L.*, Leaves.—*Fl.*, Flowers.—*Fr.*, Fruit.—*H.*, Hardy.—*H.H.*, Half hardy.—*G.*, Greenhouse.—*S.*, Stove.—*Per.*, Perennial.—*Shr.*, Shrub.—*In.*, Inches.—*Lin.*, Line = One-twelfth of an inch.—*Ft.*, Foot or Feet.—*Diam.*, Diameter.—*Pet.*, Petals.—*Sep.*, Sepals.

N.B.—Unless specified, all Orchids may be considered to be stove epiphytes.

EPIDENDRUM ARACHNOGLOSSUM, var. *CANDIDUM*. (*G. C.* xxv., p. 362.) Orchideæ. A distinct variety, with white fl., only the lateral calli of the lip being orange.

EPIDENDRUM ATROPURPUREUM, var. *RANDI*. (*L.*, pl. 49; *Cat. C. C. d'H.*, p. 4.) This is a nice variety of *E. macrochilum*, with greenish-brown sep. and pet., margined with paler, and a large white lip marked with contiguous red veins at the base. Syn. *E. Randianum*. Amazons.

EPIDENDRUM FRAUDULENTUM. (*G. C.* xxv., p. 648.) A small flowered species, with light rosy fl., the column and lower part of the ovary purple, the keel and calli yellow.

EPIDENDRUM PRISTES. (*G. C.* xxvi., p. 262.) A fine and handsome plant, with slender stems, and bright cinnabar fl., with a yellow lip, spotted with cinnabar. *L.* very minutely serrulate. Pedicels white at base. Sep. and pet. lanceolate, the pet. serrate on the upper half. Lip trifid, serrate, the mid-lobe small, bilobed, with a flexuose keel at the base of the disk.

EPIDENDRUM TRACHYCHILUM. (*Gfl.*, t. 1205.) An unattractive plant, with narrow-ovoid bulbs, bearing two broad linear acute l., and a lax panicle of moderate sized fl. Sep. lanceolate. Pet. oblanceolate acute, all dull olive green, with red dots on the pet. Lip yellow, dotted with red, side lobes angular in front, mid-lobe elliptic obtuse, undulate, with small tuberculate keels on its disk. Mexico.

EPILOBIUM OBOCARDATUM. (*Gfl.* 1883, p. 277.) Onagraceæ. *H. per.* A dwarf and pretty species, suitable for rockwork. Stems decumbent, 3 to 5 in. high. *L.* opposite, sessile, ovate, $\frac{1}{2}$ in. long. Fl. $\frac{3}{4}$ in. in diam., bright rose, pet. deeply obovate, stamens yellow. California.

EPIPHYLLUM GIBSONI. (*R. H.* 1886, p. 283.) Cacticeæ. *G. succul.* nt, much in the way of *E. truncatum*, producing 2 to 4 fl. at the ends of the branches of a beautiful dark orange-red, and having some straight hairs $\frac{1}{2}$ in. long at their base.

ERANTHEMUM MACROPHYLLUM. (*Bull Cat.*, p. 7.) Acanthaceæ. *S. winter* flowering shr. of good habit, with terminal and axillary spikes of light blue fl. The upper and side lobes of the corolla are reflexed on the sides of the long whitish tube, the lower pet. or lip is projecting, and of a deeper blue than the other lobes. India.

ERANTHEMUM VELUTINUM. (*Bull Cat.*, p. 8.) *S. shr.* distinct and pretty, with deep velvety olive green bulbous l., and long spikes of deep rosy pink fl., with a slender curved tube 1 in. long.

ERIA RIMANNI. (*G. C.* xxiv., p. 712.) Orchidaceæ. Bulbs pyriform, about 3 in. long. *L.* cuneate-oblong, acute very leathery, light green, with darker nerves. Raceme nodding, dense, covered with a few reddish hairs; fl. pellucid pale yellow, with the front lobe of the lip golden yellow with two purple spots. Burmah.

ERITRICHIMUM BARBIGERUM. (*Gfl.* 1886, p. 358 & 359, f. 42; *R. H.*, 1885, p. 557, f. 99.) Boraginæ. *H.* A pretty annual, very like a *Myosotis*, with lanceolate l. and branching scorpioid cymes of small white fl. The linear calyx-lobes are about $\frac{1}{4}$ in. long, and the whole plant is clothed with long spreading hairs. California.

EUCOMIS ZAMBESICA. (*G. C.* xxv., p. 9.) Liaceæ. *G. bulb.* allied to *E. punctata*, but the l. are firmer, and like the scape not spotted, the raceme shorter and denser, and the pedicels shorter. The fl. are green. *E. Tropical* Africa.

FEDIA CORNUCOPIE, var. *FLORIBUNDA-PLENA*. (*Gfl.* t. 1218.) Valerianaceæ. *H.* A beautiful variety with double pink fl. It forms dwarf hemispherical tufts, and is very floriferous. Garden variety.

FRAXINUS ALBA, *FOLII ARGENTEO-MARGINATIS*. (*R. H.* 1886, p. 398.) Oleaceæ. *H.* An ornamental form, having the leaflets bordered with pale yellowish, or rosy in the young leaves. Garden variety.

FRITILLARIA CONTORTA. (*G. C.* xxv., p. 631.) Liliacæ. *H. bulb.* A very distinct species, quite different from all the others in having the segments of the fl. all united (gamophyllus). *L.* 3-4, distant, lanceolate, somewhat fleshy. Fl. nodding, 1½-2 in. long, white. Origin unknown.

FRITILLARIA PERRYI. (*Gfl.* 1886, p. 117.) Liliacæ. *H. bulb.* A hybrid between *F. recurva* and *F. lanceolata*. A fine plant, intermediate between the parents, the fl. approaching those of *F. recurva*, but the fl. are produced in greater profusion and appear a fortnight earlier. Garden hybrid.

FUCHSIA AMPLIATA. (*B. M.* t. 6839.) Onagraceæ. *G. shr.* A handsome species, having the elliptic-oblong acute l. in whorls of 3, and axillary drooping scarlet fl. 2 in. long; calyx tube narrow funnel-shaped, the narrow lanceolate acute lobes slightly reflexed; pet. broadly elliptic, $\frac{1}{2}$ in. long. Andes of Ecuador.

GALTONIA CLAVATA. (*B. M.* t. 6885.) Liliacæ. *G. or H.H. bulb.* not so ornamental as the well-known *G. candicans*, but similar in general appearance, differing in its smaller greenish-white fl., with shorter segments, and lanceolate filaments. S. Africa.

GENISTA ANDREANA. (*R. H.* 1883, p. 372, with plate.) Leguminosæ. *H. shr.* A beautiful and distinct variety of *Savothamnus scoparius*, having the wings of the fl. of a bright red, instead of yellow as in the ordinary form. Syn. *Savothamnus scoparius*, var. *Andreana*. Normandy.

GENTIANA BIGELOWII. (*B. M.* t. 6874.) Gentianacæ. *H. per.* A distinct and pretty Gentian, 12-16 in. high, with linear or linear-oblong l. 2 in. long, and axillary, sessile, violet fl., arranged in a leafy spike. Calyx tube cylindric purplish, with long linear green teeth. Corolla about an in. long, with ovate sub-acute lobes, having two subulate teeth alternating with them. New Mexico.

GEUM RILETICUM. (*Gfl.* t. 1229) Rosaceæ. *H. per.* suitable for rockwork, with hairy lyrate pinnatisect green l., and one-flowered peduncles 6-8 in. high, with 2-3 reduced l., and a bright yellow fl. an in. or more in diam. Alps.

GLADIOLUS KOTSCHYANUS. (*B. M.* t. 6897.) Iridaceæ. *H. bulb.* A slender species 1-2 ft. high, with linear l. 6-8 in. long, and a few-flowered

lax spike of light violet fl., about 1½ in. long, with a nearly regular limb, the lower segments rather paler than the others, with a dark median stripe. Afghanistan, Persia.

GLADIOLUS PAPILLO, var. *ATRATUS*. (*Gfl.* 1883, p. 341.) *H. bulb.* A fine variety, with a dark purple ground colour to the fl., instead of a yellow one. *GONIOPHLEBIUM GRANDICEPS*. (*G. P.* xxv., 234; *Williams' Cat.*, p. 25.) Filices. *S. Fern* of dwarf habit, suitable for basket culture, with simple, oblong-lanceolate, leathery fronds about 6 in. long, and an inch in breadth, tapering below into a narrow wing; they arise at intervals from a slender creeping rhizome. Formosa.

GREVILLEA HOOKERIANA. (*B. M.* t. 6879.) Proteaceæ. A pretty *G. shr.*, with rigid pinnate l., having 3-9 pairs of linear segments. Racemes 2-3 in. long, one-sided, dense; fl. about one-third in. long, dull yellowish, with long crimson styles. S. W. Australia.

GUZMANNIA BULLIANA. (*R. H.* 1886, p. 324) Bromeliaceæ. This is the plant sent out by Mr. Bull as *Caraguata angustifolia*. See *F. B.*, 1886, p. 86.

GYMNADENIA MACRANTHA. (*Bull. Cat.*, p. 8.) Orchideæ. *S. terrestrial* Orchid with sheathing 3 nerved l., and a 6-10 flowered spike of dark brown fl., with a roundish purplish-lilac lip marked with darker streaks and speckles. Sierra Leone.

GYMNOGRAMMA FARINIFERUM. (*M. H.*, pl. 604; *Cat. C. C. d'H.*, p. 9.) Filices. *S.* A pretty seedling variety of *G. schizophyllum*, with graceful arching fronds, pale green, powdered with white above, entirely white beneath. Garden variety.

HABROTHAMNUS CARMINATUS, var. *RUBER*. (*Gfl.* 1886, p. 426.) Solanaceæ. *G.* An effective form, with more numerous and more brilliantly coloured fl. than the variety *elegans*. Garden variety.

HÆMADICTYUM MARGINATUM. (*B. H.* 1883, p. 260.) Filices. *G.* A noble Fern, with pinnate fronds 6 ft. and more long, the pinnae are opposite, oblong, ending in a distinct point, 14-15 in. long by 4 in. broad; the petioles are yellowish.

HÆMANTHUS BAUERII. (*B. M.* t. 6875.) Amaryllidaceæ. *G. bulb.* A very distinct dwarf species, with two large sub-orbicular dark green l., ciliated at the edge, 5-6 in. long and broad, spreading on the ground. Umbel subsessile between the l.; bracts broadly obovate white, ciliate; fl. a little shorter than the bracts, white. Kaffraria.

HOYA LONGIFOLIA, var. *SHEPHERDI*. (*G. G.* xxiv., p. 616, f. 140.) Asclepiadaceæ. A beautiful plant, with linear-obovate acute l., 5-7 in. long, $\frac{1}{2}$ in. broad, and globose umbels of pale flesh-coloured fl., $\frac{1}{2}$ in. in diam. Sikkim.

HUMULUS JAPONICUS. (*Gfl.* 1886, p. 188, 359, f. 43 and 360.) Cannabineæ. *H. climber*, somewhat like the common Hop, but the bracts of the female fl. not enlarging in fr. *L.* palmately 5-7-lobed, toothed on the margins. Male fl. in long lax panicles. Female fl. in short ovoid spikes on long peduncles, bracts cordate, cuspidate-acuminate. Japan.

IMANTOPHYLLUM MINIATUM, var. *AURANTIACUM*. (*Williams' Cat.*, p. 25.) Amaryllidaceæ. *G. bulb.* A distinct variety, with large trusses of bright yellowish-salmon coloured fl., 3 in. in diam. Garden seedling.

(To be continued.)

CULTURE OF THE PEACH IN THE OPEN AIR.

THE concluding remarks on the above subject in your issue of February 17th—viz., "but there are many others where all they seem to require is better attention," in my opinion hit the nail directly on the head, for I have proved from practical experience that if anything like the same care and attention were paid to trees outside that are accorded to those under glass, there is nothing in our climate, bad as it is, to prevent good crops being obtained annually. We will take the Peach trees under glass first. Every care is taken that the trees do not suffer. They are carefully pruned, trained, and disbudded, run over with a rabbit's tail, or other methods used to insure a good set; every precaution is adopted to keep them clear of insect pests, and they are well fed. Now, do the outside trees have the same attention? In the majority of cases I say no. They are more frequently left to take care of themselves, with the exception of an occasional washing with the garden engine, and some attention to disbudding, but they are not at all watched with the same care as their more favoured rivals inside, and the remark is, "Oh, Peaches will not do on the open walls here," and no wonder. I quite agree that there are some cold and exposed situations where it is impossible to grow them successfully on the open walls, but these are exceptions, and not the rule, and there are other situations, notably near large manufacturing towns, where it is useless to attempt Peach growing outside. Nevertheless, given a somewhat sheltered wall with a southern aspect and careful treatment, there is nothing to prevent good results. That they will succeed in Lancashire, where such a position can be given them, we can testify, for in 1886 we gathered 120 dozen well ripened fruits from the open wall here, the last being gathered on October 8th, the last dozen fruits being gathered in 1885 on October 12th.

We dig and crop the border to within 4 feet of the base of the wall, and that with such crops as our earliest Peas—viz., William I., raised in turves and planted out, Potatoes, Carrots, sow our Cabbage and Lettuce seeds, and I do not see that it is at all injurious to the Peach trees. We syringe the wall over a time or two before the blooms open with some insecticide or soapsuds, and every fine morning after the fruits are set we give them a good drenching with the hand syringe, using clean soft water. I prefer the hand syringe to any of the patent pumps, as we can force the water under the foliage better. We give them a good watering with liquid manure during the summer occasionally, which soon tells a tale. The only protection we give them when in bloom consists of a piece of canvas 54 inches wide fixed as follows—A piece of stout wire is firmly fixed along the centre on the top of the wall. Short cords are stretched on the top edge of the canvas at intervals of 4 feet 6 inches, these are tied to the above wire. A stout wire is taken every 9 feet

from the top of the wall to a strong stake driven into the border 4 feet from the wall. Between each pair of these wires a stake is driven and a cord brought down from the bottom edge of the canvas and secured to a large nail in this stake, and we can thus pull the canvas on to the top of the wall every fine day. We have always found this ample protection. It is a good plan to prune outside Peach trees as soon as the last fruit is gathered from the tree, which gives them a better chance of ripening the wood for next season.

I can also testify to the excellent results of Mr. Rodgers' practice at Charleote Park, having learnt some valuable lessons while under him at Charleote some years ago. Mr. Phipps was also a very successful cultivator of the Peach outside at Ingestre Hall, Staffordshire, some years ago. Our varieties which are successful outside are—Peaches, Early Alfred, Hale's Early, Early Anne, Prince of Wales, Stump the World, Barrington, Bellegarde, one of the best; and Late Admirable. Neectarines, Violette Hâtive and Elruge.—LANCASTRIAN.



CATTLEYA BICOLOR.

OVER fifty years ago a drawing of a Brazilian Orchid by M. Desecourtiz under the name of *Epidendrè iridée* attracted the notice of botanists, and Lindley gave a brief description of the plant in the "Botanical Register," 1836, fol. 1919, with the name *Cattleya bicolor*. He also subsequently figured it in the "Sertum," and referred to it in the periodical previously mentioned in 1838 "Miscellanea," page 80, as flowering in Loddiges' collection that year. A good coloured figure appeared in the "Botanical Magazine," t. 4909, 1856. As a distinct and easily grown Orchid it has obtained much favour with cultivators, the flowers differing greatly from other *Cattleyas*, chiefly owing to the absence of the lateral lobes that usually partially surround the column. The sepals and petals are of a peculiar brownish or lurid green, varying in depth of tint; the column is pink or nearly white, the lip very rich crimson, with darker lines, and a lighter margin. In the variety figured the margin is strongly marked, and it has on that account been named *marginata* in some gardens.

CATTLEYA PEREIVALIANA AND AERIDES LEEANUM.

By this post I am sending you a flower of *Cattleya Pereivaliana* on which I should value your opinion. The plant has been in flower about a fortnight, consequently the colour is not so good as it has been. Also you will find enclosed an *Aerides*, which we purchased under the name of *A. quinquevulnerum*. Can you kindly give me the correct name? Is not the feathering or variegation in the petals of the *Cattleya* unusual?—LIVERPOOL.

[The *Cattleya* is a very good variety of *C. Pereivaliana*, the lip being an excellent colour. We have seen several fine forms of this *Cattleya* lately; it seems to be improving. The *Aerides* is not *A. quinquevulnerum*, but apparently a pale form of *A. Leeanum*, an Indian species named by Reichenbach in honour of Mr. W. Lee of Downside. *A. Huttoni* or *Thibautianum* is somewhat like *A. quinquevulnerum* in habit, but the racemes are longer. There is a variety of *A. quinquevulnerum* named *Farmeri* which bears white flowers.]

ZYGOPETALUM MACKAYI MAJUS.

THIS has proved one of the most valuable winter flowering Orchids we possess. The way it has behaved here is most interesting. On the 1st of December, or three months ago, a small plant of it was in full bloom. It was placed in a room in the mansion and remained there

until the middle of January. It was then brought down to the garden as fresh as on the day it opened, and, what is more remarkable still, the flower is yet good. I send you a small piece that you may see it not only retains its colour, but it is still fragrant, and I do not think I ever knew an Orchid bloom remaining good for such a length of time before. In this respect it surely outdistances all other flowers.—J. MUIR, Margam.

[The *Zygopetalum* is quite fresh still and has certainly lasted well, but *Lycaste Skinneri* will remain fresh for even a longer time in rooms.]

CÆLOGYNE CRISTATA.

HAVING read with pleasure the various remarks on *Cælogyne cristata* and not having seen anything surpassing home experience in quantity of blooms on individual spikes, I forward you a spike, one of eight on the same plant bearing a like number of blooms, while two spikes had one flower each more. Those were cut for home purposes before we heard so much about the number of flowers on a spike. In our opinion the variety has a good deal to answer for on this subject, as on another plant growing under exactly the same conditions, and with much finer pseudo-bulbs, we have never had more than four blooms. Certainly the flowers are a little larger and would possibly by some be considered finer. There are a number of spikes on the same plant with five blooms, four being common, while six is represented by two spikes.—A. DOUGLAS, Baldersby.

[The spike sent had seven fine flowers, an admirable example of this useful Orchid.]

GROWING ORCHIDS UNDER ADVERSE CIRCUMSTANCES.

I AM very pleased to see a special column in the Journal devoted to notes on Orchid culture, and I hope the suggestion of your correspondent, "J. T., *Hardwicke Grange*," page 134, will be the means of inducing many of your readers interested in the cultivation of Orchids to contribute particulars of their successes and failures, especially those who have to grow them under adverse circumstances. I am sorry that at present I come within the category of that designation. "J. T." appears to me to be more fortunate. Having stove, vinery, and fernery at command, he should be able, with careful management, to grow almost any Orchid in cultivation. "J. T." says, "Who need despair?" I say, What do you wish for more? Had I the variety of houses enumerated above, I could be content, and leave adverse circumstances out of the question. There can be little difficulty in growing Orchids in houses specially constructed and adapted to their culture, but it has

never yet fallen to my lot to be in that enviable position. I had the good fortune some years ago to grow a few specimens in vineries, but I had the advantage at that time of having one of the houses so heated that it could be started at any time. I am now attempting to grow a few more. I have three small houses in which Vines are planted, but unfortunately there is not one of them at present that has sufficient piping to start Vines before March. They have been subjected to a lower temperature than I consider safe for several of the varieties I had to grow, the thermometer in severe weather often falling below 40°, but notwithstanding this they have grown remarkably well, and seem none the worse for their cool treatment.

I give the dimensions of a few of the principal plants—viz., two *Cælogyne cristata*, 3 feet 6 inches in diameter; four *Dendrobium nobile*, 3 feet 6 inches through; two *Cattleya Mossie*, 3 feet across; one *Lælia purpurata*, 3 feet 6 inches across; one *Odontoglossum Alexandre*, 3 feet in diameter; one *Oneidium flexuosum*, 3 feet 6 inches across; one *Cypripedium insigne*, 3 feet 6 inches across. These are grown in tubs 1 foot deep and 2 feet 6 inches in diameter. Also *Dendrobium thysiflorum*, 2 feet through; *Dendrobium ehyso-toxum*, 2 feet through; *Lælia purpurata*, 2 feet through; *Zygopetalum Mackayi*, 2 feet across; two *Dendrobium Wardianum*, growths 3 feet 6 inches long.



Fig. 50. *Cattleya bicolor*.

The following is a list of the varieties grown :—

<i>Brassia verrucosa</i>	<i>Lælia præstans</i>
<i>Calanthe vestita alba</i>	" <i>purpurata</i>
" <i>lutea oculata</i>	<i>Masdevallia Harryana</i>
<i>Cattleya crispa</i>	" <i>tovarensis</i>
" <i>citrina</i>	<i>Maxillaria Harrisoni</i>
" <i>Eldorado</i>	" <i>picta</i>
" <i>gigas imperialis</i>	<i>Miltonia candida</i>
" <i>Mossiae</i>	" <i>Clowesi</i>
" <i>intermedia</i>	" <i>spectabilis</i>
" <i>Mendeli</i>	<i>Odontoglossum grande</i>
" <i>Trianae</i>	" <i>bictonense</i>
" <i>Percivaliana</i>	" <i>Alexandrae</i>
" <i>speciosissima</i>	" <i>Londesborough-</i>
" <i>Loddigesi</i>	<i>anum</i>
" <i>amythystoglossa</i>	" <i>Karwinski</i>
" <i>Harrisoniana</i>	" <i>gloriosum</i>
" <i>guttata</i>	" <i>citrosimum</i>
<i>Cœlogyne cristata</i>	" <i>pulchellum</i>
<i>Cypripedium insigne</i>	" <i>crispum</i>
" <i>venustum</i>	" <i>vexillarium</i>
" <i>barbatum</i>	" <i>Rosii majus</i>
" <i>Stonei</i>	" <i>Pescatorei</i>
" <i>Hookeræ</i>	<i>Oncidium flexuosum</i>
" <i>Lawrencianum</i>	" <i>Papilio</i>
" <i>Spicerianum</i>	" <i>incurvum</i>
" <i>Veitchi</i>	" <i>leucochilum</i>
" <i>Harrisonianum</i>	" <i>bicillosum</i>
<i>Dendrobium nobile</i>	" <i>bictonense</i>
" <i>crassinode</i>	" <i>divaricatum</i>
" <i>chrysotoxum</i>	" <i>altissimum</i>
" <i>chrysanthum</i>	" <i>Marshallianum</i>
" <i>Parishi</i>	" <i>Cavendishianum</i>
" <i>tortile roseum</i>	" <i>crispum</i>
" <i>thyrsiflorum</i>	" <i>prætextum</i>
" <i>Bensoniæ</i>	" <i>ornithorhynchum</i>
" <i>Wardianum</i>	" <i>aurosum</i>
" <i>Lowi</i>	" <i>sphacelatum</i>
" <i>Dalhousianum</i>	" <i>tigrinum</i>
" <i>Devonianum</i>	" <i>ampliatum</i>
" <i>formosum</i>	<i>Pleione maculata</i>
" <i>superbens</i>	" <i>lignaria</i>
" <i>suavissimum</i>	<i>Phaius maculosus</i>
<i>Disa grandiflora</i>	" <i>grandifolius</i>
<i>Epidendrum vitellinum</i>	" <i>Walliebi</i>
<i>Limnæa rosea</i>	<i>Sophranitis grandiflora</i>
<i>Lycaste Skinneri</i>	<i>Stanhopea tigrina</i>
<i>Lælia autumnalis</i>	" <i>insignis</i>
" <i>albida</i>	" <i>oculata</i>
" <i>anceps</i>	<i>Trichopilia suavis</i>
" <i>alba</i>	" <i>tortilis</i>
" <i>harpophylla</i>	<i>Zygopetalum Mackayi</i>
" <i>majalis</i>	" <i>crinitum</i>

—L. TEMPLE, Gardener to J. Harrison, Esq., Claremont House, St. John's Grove, Leeds.

FAILURES IN AURICULA GROWING.

It is about twelve years since we commenced growing the Auricula. My employer then had a friend who gave us the following instructions, which we had to strictly adhere to. The Auricula being a native of Switzerland, where it grows on the rocks exposed to severe frost and snow, we had to find the coldest part of the garden, prepare a frame, make a trellis of woodwork to fit inside, the woodwork to be not less than 1 inch apart. The frame was then to be raised 18 inches high with bricks at the corners, and the lights were to be propped up from 12 to 18 inches, and never by any means to be shut down. Our arrangements being complete we received our plants, some were bought others given. A few of them flowered, which were considered beautiful. Potting time arrived our mixture being two parts loam, one leaf mould, one old cow manure, one sand, one charcoal, all well mixed together. Our largest sized pots required was 2½-inch. These were half filled with crocks. But in spite of all this care our plants would grow less each year.

I believe the Auricula is quite hardy, and would stand the most severe winters without any protection whatever; yet I think these, and many other hardy flowers, are better for a little protection. But what is most injurious is exposing plants to cold cutting draughts in winter and spring, or even the drying winds in summer; drawing them up in pots with such a small amount of soil in them, necessitating continual waterings, which quickly washes all the nutriment out of the soil. We have altered our practice. We have done away with all undercurrents of air, and we believe that plunging in cocoa-nut fibre is far preferable in order to keep the soil in the pots from drying so quickly, and save watering. We find drip the greatest evil, from which cause we lose more plants than all others. We bring the plants as near the top of the frame as possible, so that air can pass over and amongst them freely at all times when it can be admitted. We only shut the lights in cold weather; they are then covered with mats. We generally protect the plants from cold rough winds when they are throwing up their trusses. Instead of the mixtures we formerly used we find them grow well in a light turfy loam; although we sometimes add a little sand and leaf mould we do not think them a necessity.—J. L. B.



HARDY FRUIT GARDEN.

THE GRAPE VINE.—Very few Grapes are now grown on the open walls, but there is no good reason why they should be so neglected. Some seasons are against them, and so they are adverse to nearly all other kinds of hardy fruit. The more they are neglected the smaller the chances of securing good crops. It is late to offer any advice upon pruning established Vines, but in all probability there are yet many that have not been touched. All laterals should at once be cut back to about the second or third joint in preference to more close shortening. Closely pruned main rods rarely bear many bunches, in this respect materially differing from the more favoured, as far as heat for ripening the wood is concerned, Vines under glass. The long rod system of training we find to answer best in the case of outdoor Vines, plenty of good fruit always being obtained by it, which, if it does not ripen sufficiently for dessert purposes, is yet valuable for making into wine. This system, briefly described, consists of laying in a certain number of young rods each season, these being fruited the following year, and then cut clean back. Supposing the main stems are trained horizontally right and left, not far from the ground if on ordinary garden walls, and just above the ground floor windows if against the front of a house; from these should be perpendicularly trained the fruiting rods. These should be at least 2 feet apart, and every other one being cut down, leaves a space of 4 feet for the fruiting laterals and the young rod to be laid in mid-way from those cut down. Plenty of young rods may be laid in this season on well established Vines in whatever manner trained, and if these are duly stopped when about 4 feet in length, or rather more if extra strong, and given plenty of room, will ripen satisfactorily. Crowding the laterals and neglecting to stop them, are frequent causes of failure to ripen properly, both the wood and fruit needing all the sunshine and air possible. After young rods are formed and fruit gathered, the older rods may be at once cut away. An improvement effected by this treatment in the quality and quantity of the crops is soon evident. Some good cultivators annually lay in a number of short rods between the main stems, these, the following autumn, taking the place of others trained along the rods, and which have just perfected a crop of bunches. Young Vines should either be planted in the autumn or just as they are starting into growth in the spring.

It is useless to attempt Grape culture in any but the sunniest positions. The subsoil ought to be removed to a depth of about 30 inches, replacing with 6 inches of rough drainage and a compost of fresh turfy loam, if procurable, and good garden soil in equal quantities, adding a liberal sprinkling of crushed bones. One of the most reliable sorts for the open air is the Royal Muscadine, better known in Grape-growing districts as the common Sweetwater, Black July being a fairly good companion for it. Black Hamburg will sometimes colour well in the open, but it is very rarely sufficiently sweet to be palatable. Miller's Burgundy usually produces abundance of small thickly set bunches, which are frequently fairly good in quality. All such are supplied in pots, and they will take more readily to the soil if the roots are carefully disentangled and well spread out when planted. If any difficulty is experienced in loosening the roots, the balls should be soaked in a bucket or tub of water, and after the soil is thus easily detached from the roots, the latter can safely be separated. In most cases it will be advisable to either cut the young Vines back to within about three joints of the roots, or else to completely bend them round so as to force out the back buds, all others being rubbed out as they burst.

FIGS.—The spring is also the best time for planting young Fig trees. It is useless to attempt their culture in cold low-lying districts, as they require quite as much warmth and sunshine as the Grape Vine. In favoured south-coast districts they may be planted in the open and grown as standards, but as a rule the attempt should be made against walls in the hottest part of the garden, or against any end wall of building with a southern aspect. The Brown Turkey is the most reliable sort, none being hardier or more prolific. White Marseilles would, though small fruited, be a good companion for it. The soil should be thrown back and subsoil removed for a good space round the intended site of tree, and drainage given as recommended in the case of the Grape Vine. To the loam and garden soil should be added a proportion of at least one-third of either lime rubbish or chalk, this causing the necessary sturdy, hardy, and fruitful growth. Carefully loosen and spread out the roots prior to covering these with soil, taking care not to bury them too deeply. Bushy plants need not be cut back, but those that are not well furnished with shoots ought to be cut back freely in order to lay a good foundation. Well established trees more often require thinning out than shortening back, in fact it is the neglect of timely thinning that frequently spoils a tree. The fruit is formed near the points of short-jointed, well-ripened shoots, and it follows that these should not be shortened in any way. Too often the greater portion of the bearing wood is on the top of the walls, and overshadowing and

rendering fruitless much that forms below it. This top growth ought to be freely reduced, the aim being to thinly and evenly clothe the whole of the wall with well-ripened bearing wood, and which should only be loosely secured either by tying or strong shreds or nails. Trees that have long been in a bearing state are usually benefited by annual surface-dressings of manure, lightly forked in so as to be more readily accessible to the roots.

FRUIT FORCING.

FIGS.—Earliest Trees in Pots.—The fruit swells the best when the trees are given a top-dressing of rich material, applying it to the surface of the pots, and if a layer of turves has been placed around the rims of the pots, as before advised, space is afforded for the top-dressings. Do not give heavy dressings of rich material all at once, but apply it little and often. Apply also liquid manure—1 oz. of guano to a gallon of water, giving it in such quantity as to pass through the pots; dribbles do no good. Maintain a genial atmosphere by syringing twice a day when the weather is bright, but avoid keeping the foliage constantly wet, as would be the case by syringing the trees vigorously in dull weather. Damp the walls, paths, and beds, keeping the evaporation troughs filled with liquid manure or guano water, and to check red spider paint the pipes with sulphur. Admit a little air at 70°, increasing it with the advance of solar heat up to 85°, which ought not to be exceeded, closing at 80°. The night temperature may still range from 60° to 65°; 55° in the morning in severe weather is safer than the higher temperature, advancing 10° by day. Avoid crowding, stop or tie the shoots as growth advances, as the fruit to have flavour and colour must, when ripening, have full exposure to light, combined with a circulation of dry warm air.

Planted-out Fig Trees.—Those started early in the year will require disbudding and stopping, removing all the overcrowded shoots, stopping those intended to form well developed spurs for the second crop, the leading shoots, where there is space, being allowed to extend, as they invariably afford the finest fruit. Water the border freely with liquid manure at 80°, taking care not to apply it too strong, and mulch with rich compost, which will attract the roots to the surface. Encourage also the emission of roots from the collar or stem by placing fibrous pieces of turf and partially decayed manure in contact with it, and by extending the material outwards a quantity of feeders will be secured, which, if supplied with warm liquid manure, will greatly assist the fruit.

CUCUMBERS.—With increased light and solar heat evaporation is correspondingly increased, necessitating a greater supply of atmospheric moisture. The evaporation troughs should be kept filled with liquid manure, damping the house so as to maintain a genial atmosphere, and syringing the plants lightly during bright afternoons. A night temperature of 65° is sufficient, allowing 5° more when the external air is mild, 60° being the minimum in the morning when the weather is severe. Liquid manure may be applied once or twice a week. Do not allow the fruits to hang too long, or they may weaken the plants; besides, they keep fresh for several days with their stalks inserted in saucers of water. Thin the fruits well, especially on plants just coming into bearing, stopping the shoots at one joint beyond the fruit, removing superfluous growths and bad leaves as they appear, as well as male blossoms.

The weather has been very unfavourable for early forced Cucumbers in pits and frames heated with fermenting materials, the temperature being difficult to keep up to a point calculated to maintain steady progressive growth, a close atmosphere resulting in a superabundance of moisture, not infrequently causing the loss of the plants. When the moisture cannot be dispelled by admitting air much may be done by sprinkling lime or soot round the plants, those substances having a great affinity for moisture. Continue to prepare material for making fresh beds and for linings, and sow seeds as successional plants are required.

MELONS.—In the Melon house a ridge the whole length of the house or bed, about 2 feet wide at the base, with the top flattened so as to give a depth of 10 or 12 inches, is preferable to hillocks, the soil being made rather firm, and when warm the plants may be turned out, firming the soil well about them, and raising it to within half an inch of the seed leaves. The plants may be placed 2 to 2½ feet apart, the leading or primary shoots being taken up without stopping until two-thirds the distance they are intended to travel is reached, then pinch out the point of each. When three or four lateral joints have been made the points should be taken out. Some varieties will show fruit on the first laterals, and as early Melons are a consideration let them remain, taking out the point at the joint above them. To allow all the laterals to remain would very much overcrowd the foliage, therefore rub off whilst quite young every alternate one. After the stopping of the first laterals the succeeding growths will show fruit at the second or third joint. The growths should be trained thinly and regularly, so that every part is equally furnished with foliage and fruit.

In pits and frames with the shoots trained over the surface of the bed, the plants, being stopped at the second leaf, will produce two shoots, and these in turn being stopped will give four shoots, two being taken to the front and two to the back of the frame. Besides these a number of others will appear near the collar of the plant; these should be rubbed off whilst quite young, and do not encourage any laterals nearer the stem than 6 inches. This will keep the collar clear. Stop the principal shoots when within a foot of the sides of the pit or frame, and thus throw vigour into the laterals, which will show fruit at the second or third joint, stopping them at one joint beyond the fruit. The plants

will require but little water as yet, nevertheless maintain the soil in a moist state, avoiding saturation.

In houses sprinkle every surface in the morning of bright days and again at closing time or early in the afternoon. Ventilate carefully, avoiding currents of cold air. Some hexagon netting or serim canvas placed over the ventilators will break the force of cutting winds. Maintain the night temperature at 70°, falling to 65° in the morning, 5° less being better in severe weather than seeking to maintain the high temperature by sharp firing, 75° by day, rising to 80° or 85° from sun heat, keep bottom heat steady at 80°. Shift later sown plants into larger pots, or add soil as the plants advance, stopping those for frames at the second leaf, not stopping those for trellises, but placing a small stick to each for support.

Cover the lights of dung frames with double mats at night, and see that linings are regularly attended to, renewing the old linings as required. Prepare material for making fresh beds. Equal parts of stable litter and Oak or Beech leaves and stable litter make the best beds. About a fortnight before it is desired to make the beds the dung and leaves should be thoroughly incorporated. In a few days it will be seen whether there is sufficient moisture to produce decomposition, fermentation being the result; if not, turn the whole, sprinkling with water so as to moisten the mass, and when in good heat turn again outside to inside, and *vice versa*, two or three turnings being required at intervals of about four days. The bottom heat of dung beds should be about 85° to 90°.

CHERRY HOUSE.—Unremitting attention must be given to the ventilation. A free circulation of air should pass through the house whenever the temperature exceeds 50°, the amount of air to be regulated by the conditions of the outside atmosphere. Employ fire heat only to prevent the temperature falling below 50° in the day, and to maintain a night temperature of 40°. Attend to fertilising the blossoms. Watch closely for the appearance of aphides, especially for green aphides on Plum trees, if there be any in the house, as if the insects are allowed to become established they are difficult to kill. Grubs infest the Cherry under glass; one kind of grub rolls itself up in the leaves, and can be eradicated by squeezing, but the other is the greatest pest, and will be found encased on the under side of the leaves, giving them the appearance of being scalded; from the leaves it makes its way to the Cherries, and devours them. The only means of riddance is to examine the trees occasionally and destroy the grubs.

STRAWBERRIES IN POTS.—The earliest plants are ripening their fruit, and though the Strawberry swells freely in a high, moist atmosphere, yet when the fruit changes colour a drier and more freely ventilated house is desirable; but there must not be a sudden change, or the fruit will not finish satisfactorily. The temperature for swelling off should be 65° at night, and 70° to 75° by day, advancing to 80° or 85° with sun. The second plants have set very well, but thinning is often thought a needless operation; yet to produce fine fruit not more than half a dozen should be left on each plant. When the fruit is fairly swelling, and it is wished to forward the crop, the plants may be moved to a house with a temperature of 60° to 65° at night, 70° to 75° by day, with an advance to 85°, affording the plants liquid manure copiously, the plants being examined twice, and in very bright weather three times a day, watering such as need it. Plants in vinerys and Peach houses which are started periodically will afford successional supplies of fruit, there being no need in such cases to remove the plants except to meet special requirements. If plants are placed in span-roofed frames or plant protectors, fruit very much finer and about three weeks earlier than that in the open ground will be secured.

PLANT HOUSES.

Lilacs.—As these cease flowering cut them close back, only leaving one or two eyes on the past season's growth. They should be placed in a cool house to harden and break again into growth, and finally into cold frames. If care is taken many of these plants will make strong growth, and flower freely enough another season. Although it is better to have two batches of these plants and flower them alternately, but those not in this position may achieve success with one batch of plants, but every care must be taken of them after flowering. It is a mistake to give such varieties as Charles X. too much root room, for they grow too strongly, and fail to flower in consequence of the wood being insufficiently ripened. When thoroughly root-bound short sturdy growths only are made, which are certain to ripen if assisted for a time in a frame, and then plunged outside in a warm, sunny, open position. When they have commenced growth they may be top-dressed with a little rich material, and given afterwards two or three applications of artificial manure during the season of growth. Guelder Roses may, after flowering, be subjected to the same treatment; but these are so easily rooted, either from ripened wood or green shoots, so that there is no difficulty in having good batches of plants for alternate years. Without a large supply of flowers are needed for cutting, plants in 5 and 6-inch pots are the most serviceable for decoration.

Carnations.—Such varieties as Souvenir de la Malmaison, Lady Middleton, Gloire de Nancy, The Governor, Old Crimson Glove, and others that have been wintered in cold frames in 3-inch pots, may now be placed into 6-inch. These will be found most useful for decoration indoors before they can be had in any quantity from the outside borders. A good batch of each should be potted, and then a succession of flowers may be maintained without a break. Return them after potting to cold frames, and keep them moderately close until they are rooting freely in the fresh soil. They may then be divided into two or three batches,

according to requirements, and the strongest and most forward plants may be subjected to greenhouse treatment.

Tree Carnations.—Cuttings may now be taken from plants that have been standing in a cool house. These should be inserted in sandy soil, well watered, and covered with bellglasses. It is a good plan to insert them in 7 and 8-inch pots, and then place them in a temperature of about 60°. After they have been in a week or ten days give them slight bottom heat, and they will root quickly. If the plants have been drawn by keeping them in a confined atmosphere propagation had better be delayed for a few weeks, for cuttings from such plants are almost certain to damp. Under these circumstances place the plants in a cool airy house for two or three weeks before taking the cuttings.

THE FLOWER GARDEN AND PLEASURE GROUND.

BEDDING PLANTS.—The work of preparing a good stock of these now calls for immediate attention, and every available house and frame will in many cases have to be utilised to their fullest extent. It is always advisable to propagate rather more than are really required; at any rate, it is better to have too many than not enough, thinly planted beds being much longer in arriving at a presentable condition.

Zonal Pelargoniums.—These are yet the most in demand, and as cuttings were rather scarce many will have to be struck now. As a rule autumn-struck plants are much the best, and these should not be cut down, as they seldom recover properly from this rough treatment. They may now be either placed singly into 3-inch pots or disposed thinly in boxes, any good sandy compost suiting them. The more delicate variegated and bronze Zonals ought to be favoured with pots, the commoner sorts transplanting more readily from boxes. They should be kept warmer for a time or till well established, when cool pits and frames are sufficient protection. Strong old plants are best for furnishing cuttings, and these should not be taken off till after active growth has either commenced naturally or has been induced in gentle heat. The cuttings strike most surely when dibbled thinly into 6-inch or 7-inch pots filled with sandy soil and stood on dry shelves in a warm house, or say in an early vinery. A rather dry heat about them is necessary, and not much water ought to be given at first. We never top any of the plants, as all are finally planted in a sloping direction and pegged down, long branching plants filling the beds most quickly.

Tuberous Begonias.—If a good strain of these is grown they surpass the Zonal Pelargoniums, especially in showery weather. On no account ought the old tubers to be started yet, but seedlings should be grown as rapidly as possible. We sow seed as early as possible on the surface of pans of fine peaty soil, faced with silver sand, and this being moistened before the seed is sown no further watering is needed for some time. The pans should be plunged in a mild hotbed, covered with squares of glass, and closely shaded from bright sunshine. If found to be approaching dryness at any time partially dip the pans in a warm water tank, and allow the moisture to soak upwards, in this manner moistening the soil and sand without dislodging the minute seeds. When the seedlings are large enough to handle prick off the strongest at intervals in shallow pans filled with fine sandy soil. Supposing they are disposed about 2 inches apart each way, carefully watered in, and kept in a warm house or frame, they will soon touch each other, when they should be carefully transplanted to boxes filled with rich loamy compost. This time they may be about 4 inches apart each way, and if kept growing gently till near bedding-out time they will be strong, will transplant readily, and flower well the same season.

Verbenas.—Strong, clean stock plants being available, these if placed in a gentle heat and well away from the hot-water pipes will soon yield an abundance of healthy cuttings. No difficulty will be experienced in striking these in a warm frame or on a hotbed in a forcing house, and these newly struck plants will also yield good cuttings. It is the wiry insect-infested cuttings that frequently refuse to strike, and if they do root they never make any satisfactory progress either before or after they are planted. Verbenas usually do better in boxes than pots unless they happen to be struck late. Seedlings are the strongest growers, but they are only suitable for the centres of mixed beds or for mixed borders. If the seed is new it usually germinates quickly in a warm frame, or if placed on a mild hotbed. Sow in pans of fine sandy soil, cover lightly, water through a fine-rose pot, plunge the pans in the hotbed, cover with glass, and shade carefully. When the seedlings are well up gradually expose to more light, prick off thinly in boxes of good soil, keep in gentle heat till growing strongly, when cool pits or frames will suit them. The good old *Verbena venosa* may be raised in the same way, but at times the seed germinates very slowly indeed. If plenty of old plants have been preserved under glass the fleshy roots of these may be cut into lengths of about two joints each, and dibbled thickly into boxes of fine sandy soil. Placed in gentle heat these soon develop into tiny plants, and may be treated similar to other Verbenas struck from cuttings.

Lobelias.—We prefer increasing these by division. A number of specially prepared stocky old plants being wintered in a cool house or frame will now be emitting roots from all the young shoots above the soil. Before these roots perish the plants may be pulled in pieces, and if every little piece is dibbled into pans or boxes of fine soil and kept in a warm house or vinery they soon grow into bushy little plants suitable for temporarily bedding out into cold frames. At bedding out time they may be had 4 inches through, and they are soon effective. Cuttings, if not drawn up in heat, will strike root readily in heat, and plants of a good stock thus raised are preferable to the more vigorous

growing seedlings. The latter, however, are not to be despised. The seed, being very small, should be treated exactly the same as recommended in the case of Tuberous Begonias.

Ageratums.—A few old plants placed in gentle heat soon afford plenty of good cuttings, and these form roots very quickly in heat. They are a useful as edging plants, and should be rapidly and extensively propagated. The seed also germinates very quickly in gentle heat, but seedlings are rarely to be depended upon for edging beds.

Heliotropes.—Good beds may be formed principally with Heliotropes. The stock is best increased in a manner similar to Verbenas from cuttings, and it is always advisable to place out strong plants, or the display of bloom is certain to be very late.

Dahlias.—Old stools of these placed in a warm house and covered with soil soon push up a number of shoots, and these should be taken off with a heel, dibbled singly into thumb pots, and plunged in gentle heat or in a propagating frame. Cuttings without a heel will strike, but not if the stalk is hollow. They are liable to damp off if kept in a very steamy frame or handlight. If only a few plants are wanted these may be obtained by division of the old stools, but in this case they should not be started yet. Any quantity of Dahlias, both double and single, may be raised from seed. This germinates readily in heat, and if pricked out thinly in boxes of good soil, or singly in 3½-inch pots, strong plants will be obtained by the time they are wanted.

THE BEE-KEEPER.

SOME PECULIARITIES IN BEES AND BEE-KEEPING.

AT pages 506 and 507 in number for December 2nd, 1886, your esteemed correspondent, "Felix," gives us not only interesting reading, but refreshing as well; while on the same page "Notts Bee-keeper" makes some pertinent remarks and worthy of investigation. The quotations by "Felix," which are but a sample of many of the same nature, which the earlier numbers of the *Journal of Horticulture* contained, must be refreshing to the veteran readers of this Journal who in days gone past contributed so much information for the benefit of its readers and as a labour of love only. The quotations not only show how they were appreciated at the time given, but show how much more they will be appreciated at the present time by all, and particularly those who were led to believe differently. I observe "Felix" also corrects another popular error, that bees can be terrorised by certain means—an idea never entertained by me. Bees, unless when in terror of being caught in a storm, know no fear. When manipulated in any way they defend themselves by attacking the invader, and their natural instinct causes them to preserve as much of their honey as possible by filling themselves with it, which has the effect of allaying their temper, and is the best means known for that purpose. When bees have had a day or two of a honey glut before being supered, when all the cells of the hive are filled as well as every bee, they maybe approached and handled even roughly at that time without the slightest fear of being stung. If, on the other hand, as "Felix" remarks, there was no honey in the hive, the more the bees were annoyed the more vicious they would become, unless subdued by smoke or other suffocating substances.

It is now more than thirty years since an Inverness gentleman told me that by "saturating a sponge with creosote and putting it near the bees their honey could be taken from them without receiving a single sting. In fact," he continued, "the bees run before it." Some years previous to the above information an Irishman told me that his father, before he lost his farm, kept bees, and in order to hurry them forward in spring fed them with a mixture of cream, eggs, and flour. From the age of my informant, the above stimulants must have been in use well nigh a century. Flour as a substitute for pollen was well known to bee-keepers in this locality a century since. The information has been handed down from father to son, who were millers and bee-keepers, observed the bees gathering the flour about the mill, and I doubt not but was well known long before that time.

Although knowing the origin of some things may not benefit bee-keepers, yet it is well to know facts. The same thing applies to bees as to anything connected with the apiary in any phase of bee husbandry, but with this difference, it is materially important we should know the origin of our breed of bees as well as the aberrations that often take place amongst them. There is not the slightest doubt but that our common black bee in its pure state was inferior to those crossed by one or other of the foreign varieties introduced to this country within the past twenty-five years; while in point of fact the new varieties were in many respects superior to the black bee both in fertility and as honey gatherers. The foreign

varieties of bees of different races are now so much and widely spread throughout the country, that unless in some isolated spot the black bee in its native purity will be unknown. I am well aware that some bee-keepers situated within easy bee flight of foreign varieties maintain they are in possession of the pure black bee. I am just wondering if your "Notts Bee-keeper" is not holding the same opinion. He says "that the strain of English bees I have been testing are far superior to any foreigners I can hear of," while he admits that there are foreigners in his neighbourhood. I know there is a great difficulty in getting pure fertilisation, or even a proper cross, without isolating and at a great distance from the influence of drones not wanted. There is a bee-keeper whose apiary is seven miles distant from me and the same from another bee-keeper in another direction, and we were the only ones at the time that had Ligurian bees in this part, yet at that distance our Ligurian drones mated with his queens. In the same year, at an apiary three miles distant from me, a black hive of bees had many Ligurian drones, and doubtless were from my apiary. Now, is it not possible that the superiority of "Notts Bee-keeper's" bees is entirely due to the foreign blood of his neighbours' bees, or perhaps due to the mode of management? I have found, and frequently stated, that these broody foreign varieties must be kept in much larger hives than what most bee-keepers incline to do if success is to be expected. Small hives are of no use with these fertile bees, and nothing but disappointment will follow with those who persist in that course. Your correspondent admits that a "little foreign blood does good." That is what we very soon discovered when the Italian bee was introduced. The cross on either side showed distinctly more stamina and hardiness than the pure races, while the fertility remained unimpaired. I am not quite sure what "Notts Bee-keeper" means, whether it is that he attributes the loss and deficiency of weight to the bees being numerous, or because they are foreigners. If the latter, then I can relieve his mind on that subject.

The progeny of the first Cyprian queen I had from Mr. A. Neighbour in 1877 have never received any artificial food during the whole of these years. They were always heavy and gave a surplus of honey when other varieties had to be fed. I have already recorded the doings of these bees, which will be found in back numbers, and the Syrian bees promise to be not behind the Cyprians. I will make an effort to keep these pure and watch the effect of the climate upon them. I have the third generation of these pure, and will be able to form an opinion during winter whether they are becoming hardier than when first introduced. If so, then I shall hope as they become hardier they will also become milder in temper. Whether it is from the effects of the climate or not I cannot say, but one thing is certain, the bees are slightly more highly coloured than were the bees of the first generation.

As to bees consuming much food, I have always found that the more numerous the bees and the more brood that is being hatched, the more food is consumed. The Syrian hive that consumed so much during the autumn months might be said to have been in an abnormal state. During the winter it dwindled down to queen and about a score of bees. I kept it alive for a considerable time by catching young bees from other hives and introducing them to it. It rallied, and during the month of August was strong. I exchanged some combs with it for the purpose of queen rearing, removing all empty ones and filling the space with full frames of honey, expecting the manipulation would serve till spring; but instead of the bees remaining quiet they, true to their natural instinct, started afresh to breed the moment they found themselves in possession of so much honey, and continued to do so until a young queen was raised and hatched, consequent on the excessive and long-continued breeding of the queen, which by that time would be inclining to seek repose, when, as is commonly done in all such cases, the old queen was deposed. The enormous quantity of young bees that were brought forward partly accounted for the large consumption of food, but all hives in this locality have consumed much food this past autumn.

Will bees under certain conditions consume more food at one time than another? I am inclined to think so. If a hive of bees is reduced to starvation point, will these bees not require a certain amount of food to bring them up to condition that would not have been required had they not been allowed to reach starvation point? During the end of July in the memorable year of 1877 when I returned from Edinburgh on the 1st of August, found all my bees dying of starvation. Most of them had been attended to by my wife in my absence and were so saved. I immediately fed each hive 25 lbs. each of sugar, and in a week's time examined every one. All seemed to be then in good condition to stand the winter unless one hive, extra strong, and had not reduced its brood any. This hive had not a vestige of food that I could see after examining every comb. Other 25 lbs. was given to it; this time it was all stored. Now, where did all this sugar go, if it did not

build up the reduced bodies of the bees and sustain the many young ones which were rapidly hatching? The above is the only reasonable solution of the mystery I ever could make, for there was no robbing.

If an excessive number of bees in a hive during autumn consumes an excessive quantity of honey and jeopardises its safety by reducing it to starvation—and bearing in mind the fact that a moderate number of bees are as good for forming a stock if not better than an excessive number—is it not, then, a mistake continuing the practice of joining two or more stocks together during September? I have in a previous number shown the proper time to join stocks together is immediately before a honey glut or when at the Heather. Certainly to have bees to gather the honey when it is there is without doubt the most sensible way of reducing the number of our stocks and turning them to the best advantage; but, again, we are never sure when a glut of honey is likely to come if at all, and by joining two strong stocks together may defeat the object we have in view. I feel confident, however averse I am to it, that the time is not far distant when more bees will be killed at the end of the season than has ever been at any previous time.

The only reasonable way I see of getting over the difficulty is by uniting stocks as described above. But in spite of all precautions stocks will increase in number by swarming, which in some years cannot be prevented without much manipulation, and very often, after all has been done to prevent it, they will swarm. Whenever a hive has made arrangements to swarm and is prevented from doing so, honey gathering in many instances ceases. When bees can be prevented from swarming and kept working at the same time, then all goes well. The bee-keeper must study that question and judge for himself how best to act. Two or more swarms are easily joined, but when stocks of full strength become to be joined, it is easier said than done, and will end in failure in many cases. I shall take my own case as I was situated during summer. My stocks increased to double the number I wanted in spite of every precaution. These stocks were occupying about 5000 cubic inches of space and clustering out. To have joined two of these stocks together the hives would have stood nearly 6 feet high, a quite impracticable height taking bees to and from the Heather. Yet nothing less would do. To join two such stocks together before being put up for winter would simply have been courting failure. The stores unless extra would have been consumed in a short time. If feeding became a necessity, late breeding to a great extent would have followed, and if the weather became untoward the unfloored and distended young bees would have succumbed as well as the nurse bees, having semi-digested pap in their stomach, being simply one of the forms of distension termed by some dysentery. A moderate number of bees, about third size in bulk to the internal dimensions of the hive, and in numbers from 25,000 to 30,000 bees, forms a good stock, and when the hive is roomy and airy, but not draughty, will as a rule meet all the requirements of the hopeful bee-keeper, and will neither consume an extraordinary quantity of food themselves nor suffer in any way from late breeding, and will, if kept dry, stand the severest cold ever experienced in this country.

Bee-keepers will easily understand what I mean by strong stocks and swarms if they compare a standard hive of nine or ten frames with mine of nearly three times larger; and they have already heard my account of hives of different form and size and their doings at the moors, when smallish hives standing with only a wall separating them from mine made little or no weight, while mine rose in most cases 50 lbs. One Syrian swarm, counting the making days only (and allowing 20 lbs. of honey to make 1 lb. of wax, but which I do not believe), must, if the water vaporised, to be taken into account, have made 25 lbs. daily. I have no doubt whatever but it made from 12 to 14 lbs. daily, the difference in the figures being what I consider the error in the estimation of wax-making.

The idea that small hives, which cripple the egg-laying powers of the queen and keep down the population, give more supers is ridiculous. A small hive will of necessity fill a small super at times, often of inferior quality too, when a strong swarm in a full sized hive is only preparing for the future, but when the time comes will store more in a day than the other will do in a week. Swarms of such magnitude doubtless require more honey to support them during the entire year, but their extra gathering makes up for the loss.

In districts where the fruit blossoms are the only source of honey, the bee-keeper must have strong hives, and early too. That can only be attained by keeping extra strong hives during winter, or by judiciously uniting the brood of two hives together and raising queens after the gathering season is over. In such cases stocks will not increase so readily as where the honey season is more protracted.

From my surplus stock I gave away four nuclei, started three

beginners, besides other six swarms to fill up vacancies caused by the deaths of queens and from the effects of the past severe winter, and kept a third more than I intended or have any use for. Ten of my stocks were nuclei, being ten of twelve formed from a stock after it had swarmed. Every one of these nuclei is in capital condition. They had no assistance whatever with bees or brood, only combs, neither do they require bees, and to have joined the strong swarms I gave away to them would have done more harm than good.

Now, after studying the matter thoroughly, both from present and past experience, and finding that stocks will increase in number in spite of every precaution to prevent it, and there being no demand for the surplus bees, and which will serve no good purpose to join to stocks already in full strength, what can we do with them but suffocate them, however inhuman it may be? If it was the case that six weeks was the average life of the bee, there would be less difficulty in getting them disposed of, but that is not the case. In June, 1885, my neighbour had a large swarm composed of two or three swarms. An unfertilised queen was the victor, she missed the drone and become a drone breeder. The bees wrought well up till September this year, when some were still alive. —LANARKSHIRE BEE-KEEPER.

THE HONEY QUESTION—DR. GEO. WALKER AND THE BEE-KEEPERS' UNION.

DR. GEO. WALKER, page 142, asks "Why did not the Bee-keepers' Union make a start?" and hints that it and its promoters "were snuffed out, Keats like, by an article or two in the *Bee Journal*." If two leading articles in each issue of the *British Bee Journal*, besides letters in the correspondence column, all in the favour of the Honey Company, are only "an article or two," all I can say is the Doctor must intend his language, like his physic, "to be well shaken before taken." As to why the Union did not start, just let me refer him to the pages of this *Journal* and the *British Bee Journal*—where we were all boycotted—for his plea to let the Honey Company have a trial. It was stated to have been successfully floated, and had begun business, though we now know how small it was, and in addition to Dr. Walker there were the Baroness Burdett Coutts, the late Mr. Peel and others, who all requested or begged bee-keepers to give it a trial. Then there was the expense of giving the Union a start, £500 being spent in starting the Honey Company. Under this head we found a great difficulty, for though most were willing to give their services freely and work for nothing, they were too poor to accept all the necessary financial responsibility. Then we could not go to the county gentry, as the fundamental principle of the scheme required all its members to be *bona fide* bee-keepers, and we could not enrol outsiders like the British Bee-keepers' Association; so under the circumstances it was decided to hang up the Union scheme till we saw what the Honey Company would succeed in doing with its £20,000 capital, and as the result is ludicrous in every way we look at it from a bee-keepers' point of view.

I think it is now an opportune moment to set the Bee-keepers' Union afloat, and perhaps Dr. Walker will help us. This scheme is all cut and dried ready to start any time, and is to carry out on an organised scale the principle so successfully worked by Mr. Godfrey at Grantham, and so successfully imitated by the Canadians in London last year, and is not intended to interfere with, or clash with, the various bee-keepers' associations. The scheme in full was published in this *Journal* on February 19th, 1885. So if anyone would like to see the Union floated, he should write Mr. J. Hewitt, Cambridge Street, Sheffield. First, those intending members, enclosing 3s. 6d., being 1s. entrance fee and 2s. 6d. subscription under rule 4; second, those who will join the Union as members; and third, those who are willing to contribute towards the preliminary expenses. Should there not be sufficient response to justify us in going on with the scheme, all money will be returned to senders, and should sufficient show their desire we should be able to hold several honey fairs in the autumn, and have everything organised before the year is out.

Every person, male or female, who keeps bees can be members, and not only will distinctive labels be found them to put on their honey and markets found for them, but all their interests will be attended to. For instance, a bee-keeper here sent to a noted appliance dealer for some frame hives, which were packed inside one another very solid, and were consigned as "joinery." The railway company said they were "bee hives," and charged three times as much for carriage than they would for fowl pens or dog kennels. When the list of charges were framed bee hives were all straw, and in addition to being light had to be carefully handled. Of course, they were overcharged, but who is to fight the matter? If the hive maker paid the carriage he might, though he would be doing so for the benefit of rivals. My neighbour says it is not worth his while, as he would be more out of pocket even if he won. Had there been a bee-keepers' union and this man a member a letter from its secretary to the railway company would quickly settle the matter, for the knowledge that all the bee-keepers in the country were backing him up would carry more weight than any private demand.

Another advantage to bee-keepers in the Union will be found in the labels, which will first declare the honey to be pure British honey from the apiary of John Blank, Beebank, Sweetborough, a member of the N.B.B.K.U., which carefully guards against fraudulent practices by its

members, &c. Thus, should his honey, though dark in colour and strong in flavour, find a purchaser whose palate particularly fancies that honey, he can, by means of a postcard and the Parcels Post, get supplied direct from the producer. This class of bee-keepers are legion; and it is a fact, which I challenge Dr. Walker to disprove, that what little honey his Company buys does not comprise any that is dark in colour or strong in flavour; but rather that they buy the finest samples only, carefully see that the producer's name is not on, and then put on their own, so that he can boast, "Our brand is making its way, and grocers find that the public will not take other honey in place of it." Very consoling this to bee-keepers! The "brand" that should be on all merchandise should be the producer's. The name and address of the producers were on all the Canadian honey. Another item for reflection consists in his statement that they "made a gross profit of £100 in a turnover of £700," and this, mind, as wholesale dealers, which is about 15 per cent. The shopkeepers whom they supplied would require on this basis 30 per cent., making the difference between the price paid by the public and received by the producer about one-half; or say we pay carriage to the Honey Company and get 6d. per lb., the public pay for the same honey 1s. per lb. At this rate bee-keepers could supply the public well through the Parcel Post at even less than the gross profits made by the Honey Company. All the public want is a certain knowledge that what they buy is pure, and to know where more like it can be had.

Dr. Geo. Walker says they "turned over £700, and during 1885 bought upwards of £1000 worth of honey." Is there a printers' error here Mr. Editor? as 1885 was the first year of the Honey Company, and how they could turn over £700, and yet buy upwards of £1000 worth of honey, puzzles me quite. I do not wish to be unkind to Dr. Walker, but may I remind him that prosperous joint stock companies are not amongst those who defer presenting their annual balance sheet for nearly eleven months after the end of the year. He is not correct in saying that I, "Felix," "A. L. B. K.," or others praised to the skies the Bee and Fruit Farming Company, which was brought out to buy up and carry on a certain business already established, and did not profess to profit bee-keepers in general, and find them a certain market for their honey.

In conclusion let me remind every person who is interested in bees, that if he or she neglects to write to Mr. J. Hewitt and do their share, they may never have another chance of being organised into a Union which is calculated to aid them so much in everything which concerns them as bee-keepers. —A HALLAMSHIRE BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

J. R. Pearson & Sons, Chilwell Nurseries, Nottingham.—*Catalogue of New Zonal Pelargoniums and other Plants.*

Messenger & Co., Hot-water Engineers, Loughborough.—*Catalogue of Horticultural Buildings and Heating Apparatus (illustrated).*

James Carter & Co., High Holborn, London.—*Farmers' Handbook and the Practical Farmer.*



** All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

TO CONTRIBUTORS.—Our friends who favour with communications on controversial subjects will oblige by sending their articles as soon after they receive the *Journal* as possible. Our space is practically filled on Monday, and only articles that are "expected," and which arrive on Tuesday, can, as a rule, be inserted in the current issue.

Address (F. Crook).—The address you require is given in the report, which we presume you have read on page 133.

Books (J. W.).—The French gardening book to which you refer was not sent to us for review, therefore we are unable to express an opinion thereon; nor without knowing your particular requirements are we able to recommend a work likely to suit you. (W. B.).—Pearson's "Vine Culture" is a small work, giving sound information in few and plain words. The price is 1s. 1d., post free, from that office. (S. E.).—Mr. Sander's new work, the "Garden Calendar," tells when to do most things in and outdoors. It is published by Messrs. Hamilton, Adams & Co., price 2s.

Tomato Seed (W. M.).—We are obliged by the seed you have sent; it differs somewhat from other samples we have, and the variety shall be grown during the present season. Are you sure it is not Capsicum seed?

London Flower Shows in March (A. M.).—We have not had any notification of any special shows to be held at South Kensington, but meetings of the Floral Committee of the Royal Horticultural Society will be held on March 8th and 22nd, at both of which spring flowers are certain to be represented. The first spring show of the Royal Botanic Society will be held on March 23rd, and a flower show will be held at the Crystal Palace on the 26th of the month.

Double Cineraria (J. H.).—The specimen you have sent is very well grown, and we doubt not you find it useful for decorative purposes. But it is not superior to existing varieties; in fact, the flowers are neither so large nor double as many we have seen, and there are others similar in colour. It is attractive, but we doubt if it is of any great commercial value.

Daisies on Lawn (Farmworth).—No doubt the artificial manure would invigorate the Daisies. Many persons have cleared Daisies from their lawns by occasional applications of Watson's lawn sand, which is made and sold for the purpose. We have seen it used with good effect, but it does not appear to have been effectual in all cases, possibly in some of them through the directions not having been carefully followed. It is sold by most dealers in horticultural requisites, also by many nurserymen and seed merchants. It is worth trying under the circumstances you describe.

Zonal Pelargoniums for Winter (E. M.).—It is not easy to name two only in each colour as bearing the "finest flowers," and as a practical way of determining a few that are really good the following are selected from Mr. Cannell's great collection that is now and has been through the winter a brilliant feature at Swanley. Singles: dark and crimson—Mr. H. Cannell, and Raphael; scarlet—Ajax and C. H. Swinstead; orange or salmon—Swanley Gem and Lady Chesterfield; pink—Edith George and Eurydice; white—Queen of the Belgians and Eureka. Doubles: F. V. Raspail, scarlet; Lord Derby, pink; Blanche perfecta, white; Black Knight, crimson.

Stoneless Grapes (C. P.).—This subject was ably discussed by Mr. S. Castle in our issue of January 6th of the present year. The setting of Grapes is the result of fertilisation, and this, as Mr. Castle observed, aids their stoning, but the lack of stones in full-sized berries is indicative of the absence of sufficient calcareous matter in the soil. You had better read attentively the article in question; then, if you need further information on the subject you can write again.

Roses (A. B. C.).—Assuming your Roses were correctly named we are not able to account for the lack of richness in the colours. A trace of iron in the soil is said to deepen the colours of dark Roses, and liberal applications of wood—not coal—ashes or broken charcoal to the soil might be of benefit in your case. You may spread it on the surface an inch thick if you have sufficient, pointing in lightly with a fork. Failing a supply of charred material you may with advantage give a good dressing of soot, making the soil black with it and pointing it in. Copious applications of liquid manure, such as the drainings from manure heaps, or soot water, when the buds are swelling, would increase the size and deepen and brighten the colours of your Roses.

Briar Cuttings (A. M. B.).—We prefer inserting them in November, but you may try some now, choosing firm matured portions of last year's wood, cutting in lengths of about 8 inches the lower end of each smoothly close under a joint, and insert firmly in sandy soil, only one, or at the most two, buds being above the surface; but all the buds must be cut clean out except those, or suckers will spring up. If the cuttings root and grow well the stocks may be grafted next spring, attaching the scions to the upper part of the stock within the soil, which must of course be cleared away for that purpose if the plants are not taken up and potted for grafting. To facilitate budding and grafting *in situ* it is usual to insert the cuttings firmly about half their length, and draw soil up the remaining portion as if earthing Potatoes, their ridges being easily levelled down for operating on the stocks. They often have to remain two years to get strong enough, and the more roots the stocks have the better is the growth of the attached Roses.

Old Fruit Trees (W. B.).—Limewash, or dusting the trees with dry lime when the branches and twigs are wet, as they are on a damp, still, foggy day, will destroy moss on them, and any lime falling to the ground will also be of benefit to the roots. Old healthy Plum trees with long spurs often bear well, and it is certain if you cut back all those spurs you will have no fruit this year. If much crowded it may be desirable to thin some of them out, retaining the best placed and most promising, and some of them may possibly be tied back to the main branches. It is important to so prune and dispose the growths that the foliage will be fully exposed to the sun and air in summer, a thicket of leaves being the reverse of conducive to fruitful wood. Fresh roots near the surface of the ground also promote fruitfulness, and they may be incited by removing some soil, just baring some of the roots, and adding fresh, containing a good proportion of charred material and some lime rubbish, pressing it down pretty firmly, and mulching with manure to prevent the escape of moisture from the soil in summer. We know of no book that will exactly suit you, but we shall shortly publish an article descriptive of a method adopted by a gardener in renovating old trees on walls and making them fruitful, and the same plan intelligently carried out might be similarly beneficial in your case.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (B. J.).—*Catasetum tridentatum*. (T. S.).—The plant is a bulb, *Veltheimia viridifolia*. (Constant Reader).—1 resembles *Ledum palustre*. 2 is quite unrecognisable without flowers. Both were poor examples for naming. (R. W.).—Small pieces of leaves are insufficient for determination; only the two following can be named. 5, *Peperomia arifolia*. 6, *Goodyera* or *Hemaria discolor*.

COVENT GARDEN MARKET.—MARCH 2ND.

MARKET very quiet. Prices without alteration.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples	1	0	5	0	Melon	0	0	0	0
" Nova Scotia and					Oranges	0	0	12	0
" Canada, per barrel	10	0	13	0	Peaches	0	0	0	0
Cherries	1	0	0	0	Pears	1	0	2	0
Cobs	100	lb.	60	0	Pine Apples English ..	1	6	2	0
Figs	dozen	0	0	0	Plums	1	0	2	0
Grapes	lb.	2	6	5	St. Michael Pines ..	2	0	5	0
Lemons	case	10	0	15	Strawberries	0	0	0	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes	dozen	1	0	0	Lettuce	1	0	1	6
Asparagus	bundle	8	0	0	Mushrooms	0	6	1	0
Beans, Kidney ..	per lb	1	6	0	Mustard and Cress punnet	0	2	0	0
Beet, Red	dozen	1	0	0	Onions	0	3	0	0
Broccoli	bundle	0	0	0	Parsley	2	0	3	0
Brussels Sprouts ..	1/2 sieve	2	0	6	Parsnips	1	0	2	0
Cabbage	dozen	1	6	0	Potatoes	4	0	5	0
Capsicums	100	1	6	2	" Kidney	4	0	5	0
Carrots	bunch	0	4	0	Rhubarb	0	2	0	0
Cauliflowers	dozen	3	0	4	Salsify	1	0	1	0
Celery	bundle	1	6	2	Scorzonera	1	6	0	0
Coleworts	doz. bunches	2	0	4	Seakale	1	6	2	0
Cucumbers	each	0	6	1	Shallots	0	3	0	6
Endive	dozen	1	0	2	Spinach	8	0	4	0
Herbs	bunch	0	2	0	Tomatoes	1	0	2	0
Leeks	bunch	0	3	0	Turnips	0	4	0	6

CUT FLOWERS.

	s.	d.	s.	d.		s.	d.	s.	d.
Abutilons	12 bunches	2	0	4	Lily of the Valley, 12 sprays	0	9	1	6
Arum Lilies	12 blooms	4	0	6	Marguerites	2	0	6	0
Azalea	12 sprays	0	6	1	Mignouette	12 bunches	4	0	6
Bouvardias	per bunch	0	6	1	Narciss, Paper-white, bunch	0	4	0	6
Camellias	blooms	1	6	4	" White, English, bunch	1	3	1	6
Carnations	12 blooms	1	0	8	Pelargoniums, per 12 trusses	0	0	0	0
"	12 bunches	0	0	0	" scarlet, 12 trusses	0	6	1	6
Chrysanthemums 12 bunches	0	0	0	0	Roses	12 bunches	0	0	0
"	12 blooms	0	0	0	" (Indoor), per dozen	1	0	2	6
Cornflower	12 bunches	0	0	0	" Tea	dozen	2	0	4
Cyclamen	12 blooms	0	4	0	" red (French) dozen	2	6	3	6
Dahlias	12 bunches	0	0	0	Parm Violets (French)	6	6	7	0
Epiphyllum	doz. blooms	0	6	0	Poinsettia	12 blooms	0	0	0
Eucharis	per dozen	4	0	6	Primula (single) per bunch	0	4	0	6
Gardenias	12 blooms	12	0	2	" (double) per bunch	1	0	1	6
Hyacinths, Roman, 12 sprays	1	0	1	6	Stocks, various 12 bunches	0	0	0	0
"	12 sprays	4	0	6	Tropeolum	12 bunches	1	6	2
Lspageria, white, 12 blooms	2	0	4	0	Tuberose	12 blooms	2	0	4
Lspageria, red .. 12 blooms	1	0	2	0	Tulips	doz. blooms	0	9	1
" longiflorum, 12 blms.	0	0	0	0	Violets	12 bunches	1	6	2
Lilac (white), French, bunch	6	0	8	0	" Czar, French, per bunch	2	0	2	6

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.
Aralia Sieboldi ..	dozen	9	0	18	Ferns, in variety ..	dozen	4	0	18
Arbor vitae (golden)	dozen	6	0	9	Ficus elastica	each	1	6	to 7
" (common)	dozen	6	0	12	Foliage Plants, var. each	2	0	10	0
Azalea	per dozen	24	0	36	Hyacinths	per dozen	6	9	0
Begonias	dozen	4	0	9	Lilies Valley	dozen	12	0	24
Cineraria	per dozen	9	0	12	Marguerite Daisy ..	dozen	6	0	12
Cyclamen	dozen	12	0	24	Myrtles	dozen	6	0	12
Dracæna terminalis, dozen	30	0	60	0	Narciss (various) ..	dozen	12	0	15
" viridis	dozen	12	0	24	Palms, in var.	each	2	6	21
Erica, various	dozen	9	0	12	Primula elensis per doz.	4	0	6	0
Euonymus, in var. dozen	6	0	18	0	Solanums	per doz.	9	0	12
Evergreens, in var. dozen	6	0	24	0	Tulips	per doz. pots	6	0	9



DAIRY FARMING.

FARMS situated within an hour or two's journey by rail from large towns have exceptional advantages for the disposal of dairy produce, and it must be owned that the farms around Liverpool and Manchester, and in the home counties have such advantages. But there are few farms where butter and cheese may not be made profitably, and all dairy farms should have a fair proportion of pigs and poultry. The selling of milk and cream must always depend upon the locality in which a farm is placed, but butter and cheese have only to be really good to command a quick sale everywhere, for they are in daily use in every household; yet notwithstanding this certainty of a ready sale for them, it is the exception and not the rule to find really good butter in an ordinary farmhouse.

To consider this important matter in detail we naturally turn first of all to the cows, and we are at once compelled to give attention to the value of selection and breeding. In our own practice we are bound to acknowledge that we have had more failures among Shorthorns as dairy cows than in any other breed. But then it is well known how much difference there is among cows of this famous and fashionable breed. Beef and not milk is what we generally look for among Shorthorns, yet deep milkers are by no means a rarity among them. So confident was a dealer of the high merits of a young Shorthorn cow for milk, that he urged us to take it on trial, and assured us that it would fill a pail with milk twice daily. We found upon trial that his assertion was correct, but then the milk was so poor in quality that it was comparatively worthless. Sussex cows, too, are generally inferior milkers, but both breeds may be much improved by cross-breeding with Guernseys.

Channel Island cattle are undoubtedly in the first rank for rich milk, and where (as upon many home farms) only the best milk must be had, pure bred Jerseys or Guernseys have the preference. Of these two breeds we would always choose Guernseys as the finer and more robust animals, and as yielding milk that is equally rich and certainly more abundant than that of Jerseys. For the ordinary farmer a crossbred cow, the progeny of any good local breed, with an infusion of Channel blood, is best, as tending to insure good quality of milk with a vigorous constitution. It must not be forgotten that cows will fail more frequently from barrenness than any other cause, and then if only we are able to fatten them for the butcher quickly and well there is no serious loss. But a barren Jersey cow cannot easily be fattened, and it is generally sold at once at a loss. It is solely owing to the risk of barrenness that we always keep more cows in our herd at the home farm than we require. We must have enough cows to afford a stated quantity of milk, cream, and butter, and if we only had just enough for the purpose a single failure would affect our arrangement so seriously that we are bound to have a surplus supply in order to be safe.

The other matters of importance next to good cows are warm sheds and yards well enclosed; good drainage, clean interiors both of walls and floors, constant attention to keeping the cows from contact with all foul or decaying substances, clean litter given daily, litter for the yards, and clean dry bedding in the sheds, not merely clean and dry to the eye, but so in reality. Nothing can be more injurious to a cow than to lie down upon litter sodden with moisture and reeking with foul odours. If we would have healthy cows and sweet milk there must be entire cleanliness in buildings, litter, water, food, milk pails, the milker's hands, and in the dairy. The cows too must be quite healthy in every part, or not only may the milk be unpalatable but it may be positively unwholesome.

The researches of Mr. W. H. Power, Dr. Cameron, and the great German pathologist, Dr. Klein, led to the discovery that in a dairy where extraordinary precautions were taken against infection an obscure disease affected some of the cows, and while not contaminating their milk in itself, provided the materials for such contamination in the shape of small external ulcers, the matter from which was carried into the milk by the action of the milker's hand. As the milk came from the cow it was pure; as it fell into the pails it was infected. The organism contained in the particles from the ulcers found in the milk a good medium in which to multiply, and such milk then practically corresponded to an artificial cultivation of the strepto-

coccus, capable of setting up scarlatina in the human subject. It may be explained that a strepto-coccus is a chain-coccus—that is, a number of cocci or micro-organisms constituting the virus of a disease strung together chain-wise. Some account of this important matter has appeared in several papers, but the most clear and useful statement we have seen was recently published in the *St. James's Gazette* under the quaint title, "On the Track of a Coccus."

WORK ON THE HOME FARM.

Some losses among the ewes of one of our breeding flocks have induced us to look closely into a matter which upon the surface was apparently inexplicable. We have two such flocks—one upon the home farm, the other upon a farm some sixteen miles distant from it. In the first flock we have lost ten ewes, in the other there has been no losses. The proportion of lambs in both flocks is very similar—about a lamb and a half per head. Up to the time of lambing the condition of both flocks was entirely satisfactory, but then foot-rot made its appearance in the home flock. The ewes affected became somewhat reduced in condition. But the losses were not solely among them; animals apparently healthy enough up to the time of parturition suddenly becoming so feeble as to be unable to give birth to the lambs, which, in more than one instance, were dead when taken from them, and notwithstanding the use of stimulants and carbolic oil the ewe was soon dead. On the other hand, we have had no losses in the other flock on the off farm, and we can only account for this by the fact of this flock consisting entirely of two-year-old sheep, while there are sheep of all ages in the home flock. The older sheep must have suffered from the severity of the weather just before the lambing began, notwithstanding our liberal dietary, and we have no doubt that if they could have had the shelter of yards and sheds with dry floors we should not only have avoided most of the losses, but also have lessened the severity of the strain made upon the health of the whole of the ewes by being left out upon the snow-covered pasture. It is only by learning the cause of such losses that we can hope to avoid them in future if only we are able to afford the flock the necessary amount of shelter. It may be said, Why keep old sheep that are so liable to suffer from such causes? To this we must answer that we annually draught all broken-toothed or faulty sheep from the flock when the lambs are weaned, and in ordinary winters a full-mouthed ewe is perfectly safe without extraordinary care, and a good mother and sure breeder is always retained in the flock as long as possible. We grant that under good management there should be only an occasional loss among ewes. We record our losses this season for our own guidance, as well as that of our readers, for we hold that to render lessons in practice really useful the cause of each failure as well as of each success should be known. There are no such things in farming as mysteries; cause and effect may always be traced. Well will it be if we can anticipate failures, and avoid them by wise and timely precautions.

POULTRY AND PHEASANT REARING.—"Spratts Patent" sends us two small pamphlets, entitled "The Common Sense of Poultry Rearing" and of "Pheasant Rearing" respectively, in which much practical information is condensed into small space.

FARMERS' YEAR BOOKS.—We have received from Messrs. Sutton & Sons Reading, Webb & Sons, Worsley, and Carter & Co., High Holborn, copies of their trade catalogues for agriculturists. They are excellent productions, pointing out the advantages of their specialities, and giving much information of service to home farmers.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.						Rain.
	Baromet- ter at 324 and Sea Level	Hygrom- eter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		In. sun.	On grass.	
		Dry.	Wet.			Max.	Min.	In sun.	On grass.			
1887.												
February.												
Sunday	30.181	33.8	37.1	Calm	34.9	44.2	36.5	58.8	37.0	0.063		
Monday	30.047	41.3	39.0	N.	35.8	48.4	38.8	53.4	37.4	—		
Tuesday	30.159	31.0	34.0	Calm	36.3	47.4	32.4	55.3	24.4	—		
Wednesday	29.138	47.2	43.1	S.W.	37.2	56.4	38.9	60.4	39.9	—		
Thursday	30.110	46.4	43.3	S.W.	39.0	49.8	44.7	61.4	41.8	—		
Friday	30.069	47.9	45.2	W.	41.2	52.6	43.4	67.8	41.8	—		
Saturday	30.335	31.9	31.4	Calm	39.7	50.3	25.9	73.8	24.3	—		
	30.173	41.1	39.4		37.5	49.0	37.4	70.0	34.1	0.063		

REMARKS.

20th.—Fair throughout.
21st.—Very bright and fine; misty in evening.
22nd.—Fine early, with white frost; foggy from 7 a.m. to 10 a.m.; fine day, with a little sunshine.
23rd.—Dull, with occasional drizzle.
24th.—Cloudy morning; fair afternoon, with a little sunshine; drizzle in late evening.
25th.—Bright and pleasant.
26th.—White frost, thick fog till nearly 11 a.m., then fine and bright.
A fine dry week. Temperature about 4° above the average and nearly 3° above that of the preceding week.—G. J. SYMONS.



COMING EVENTS

10	TH	
11	F	
12	S	
13	SUN	3RD SUNDAY IN LENT.
14	M	
15	TU	
16	W	Liverpool Spring Show.

CONGESTED SHRUBBERIES.

PREPARING SHRUBS FOR REMOVAL.

CONGESTED shrubberies form one of the most common features in otherwise well-managed pleasure grounds. The saw and pruning hook may occasionally be called in to relieve the pressure, but never with any long continued or satisfactory results. Especially in grounds where there is breadth and room enough to spare, it borders on folly to attempt to compress the vigour of shrubs into defined limits. Much better is that system which consists in watching the development of individual specimens, and taking early steps to prevent any interference with their progress. But in the congested shrubberies such as we have in view individuality has no place, and all that remains to be attempted is to remove the least valuable to other quarters, and so allow those that are left space for a less restricted growth.

The removal of shrubs which have been undisturbed for a number of years is commonly looked upon as a work of some difficulty, and of much uncertainty as regards the ultimate well being of those removed. Large-rooted fibreless plants present a difficulty which can only be satisfactorily overcome by transforming these lengthened thongs into short stubs bristling with fibres. This transformation, at the same time that it makes removal a labour of comparative ease, also secures the future safety of the plant. The way to turn long roots into short ones is easy enough; it simply consists in digging a narrow trench round and at a short space from the bole of the specimen, and in that operation cutting all the roots which cross the trench. At some seasons of the year to perform an operation of this kind on an old plant would mean, if not its death, at the very least its disfigurement. There are two periods when so rude-looking a method may be effected without in any degree impairing the health or marring the appearance of the specimen. The one at the end of August when top growth is, if not quite, yet nearly completed. Roots are formed somewhat rapidly during September and the first half of October, and the shrubs winter in safety and are ready for a start afresh in spring. The other period is in the early part of the year, and is best defined by the condition of the plant to be operated on. The buds should be so far developed as to be on the point of breaking into shoots; perhaps at a little more forward stage no harm might follow, but at the stage indicated certainly none would occur. The soil before being returned into the trench should be broken well up, and if of poor quality and the specimen worth it, a quantity of light open material would be of much advantage placed opposite the cut roots. It is also well to see

that the soil is rendered firm, as this is to some extent a preventive of drought during summer. We lift shrubs treated as indicated above the autumn of the same year in which the roots are cut, October being a very good time to move them. Those who have not had experience with old shrubs treated thus would be surprised to see the splendid balls of roots formed during the summer and autumn. We have a number to take in hand during the present spring, which if left longer would require to be cut well back, or otherwise they would permanently damage each other; but by root-pruning in the above rough fashion we shall be able to lift any we choose in autumn without hurting them in any way.

Though perhaps not exactly to be found in the heading of these notes, it may be admissible to point out here another feature in the transplanting of shrubs from one part of the grounds to another, and that is the best time of year in which to undertake the work. Under ordinary circumstances September and October would doubtless be selected by practical men as the best, and the month of April as perhaps the worst; but from experience gained during the past few years I am strongly inclined to consider the summer months as being, if not better than the autumn months named, at least quite as good. I should never hesitate now to move an evergreen while in full summer growth. The precautions taken would merely be to see that the roots were moistened before removal, that dull weather should be chosen for the work, and that the plant be kept moist at the root for at least ten days in its new quarters. In a pressing case I have had shrubs forwarded in June from a nursery, had them on the road over a week, and yet lost only 5 per cent. of the consignment. A case of that sort is extreme and not to be recommended, but it is of value as showing how quickly and surely even such shrubs recover when the ground and air are warm, as is the case in summer. In the matter of plants to be removed from one part of the grounds to another on the same estate there is no fear of their succumbing.—SYLVANUS.

CULTURE OF CALANTHE VEITCHI AND
C. VESTITA.

NUMEROUS failures appear to have occurred with the *Calanthe* in the past season. I do not propose to explain the cause of those failures, neither could I do so if I attempted; but I will give a few particulars of the system by which we have always grown these plants successfully. As soon as all the flowers are cut and we can detect signs of the pseudo-bulbs starting to grow again, we turn them out of the pots, separating the old from the new pseudo-bulbs, and unless we want to increase the stock we cast the old ones away; the new we clear of all that remains of the old leaves, and cut the roots off to within an inch of the base. We give each pseudo-bulb a good sponging with clean soft water, this saving much work later on, as we never have to clean them again, but we fumigate lightly if a green fly makes its appearance. We then take some boxes about 6 inches deep, and place in them about 2 inches of good leaf mould run through a half-inch sieve; on this the base of the pseudo-bulbs rests, the tops leaning against the end of the box, a piece of lath being tacked across the top of the box for the next row to lean against, and so on until the box is full, keeping them far enough apart so that it can be seen if any insects attack the young growth. For plants of *Calanthe vestita* shallower boxes or pans suffice without any laths. In about a month

roots an inch long bristle from the pseudo-bulbs, and they are then ready for potting.

The compost we use is one-half good fibrous loam with the finer particles sifted out, one-quarter leaf mould, and one-quarter cow dung, with a free addition of charcoal and potsherds broken small, and a little silver sand. The cow dung is baked on a flue to destroy all animal life, and then broken in pieces about the size of cob nuts. Both pots and materials used for drainage are washed perfectly clean, the pots are drained well with rough crocks and charcoal, finishing with smaller particles. The pots are half filled with drainage, and this is covered with moss for the soil and roots to rest on. Each pseudo-bulb of *C. Veitchi* is secured to a short stake, *C. vestita* being shorter not requiring stakes. Great care is taken in potting not to break any of the young roots, and the soil is sufficiently moist not to require any water for some time. We use pots varying in size from 6 to 10 inch, putting nine or ten in the 10-inch and four or five in the 6-inch, according to the size of the pseudo-bulbs. We place them in a temperature of 65° to 70° at night, with a rise of 10° or 15° by day, on a stage about 18 inches from the glass, taking care that the foliage does not get crowded as it develops. In very hot and bright weather a little limewash is applied to the glass, this being the only shading afforded. We close the house early in the afternoon with plenty of moisture, the temperature sometimes rising to 120° afterwards. When the pots are full of roots liquid manure is given at every alternate watering, using that obtained from the stables generally, and occasionally a little guano water.

When the flower spikes are about a foot high we gradually reduce the supply of water, so that by the time the flowers expand the soil is nearly or quite dry. About the time the spikes are 6 inches long the leaves generally commence withering, and instead of trying to keep them fresh we cut off all the decaying portions when cleaning the house, and by the time the flowers open the leaves are all gone, or nearly so. When about half the flowers on a spike are open we shift the plants into a cool dry house, where they generally remain attractive until starting time comes round again.

If we wish to increase our stock of *Calanthes* we save the old pseudo-bulbs, and after washing them well, lay those of *C. Veitchi* intact flat in leaf mould. If we wish to increase them very quickly we do not hesitate to break off the tops from the new pseudo-bulbs and lay them down in the same manner, and growths from the latter will generally throw up a fair spike of bloom. *C. vestita* we prefer to split in half from top to bottom, and after being allowed to dry a little powdered charcoal and sulphur are mixed and rubbed on the cut side. When these have started growth and made a few roots we put them in pairs in the same kind of compost as we use for the others, and accord the same treatment.—LANCASTRIAN.

ROSE-GROWING FOR BEGINNERS.

(Continued from page 169.)

FIGURES 31, 32, and 33, show a standard Rose tree at one, two and three years old. They are all marked for pruning.

In pruning standards we have to consider the formation of the head, as well as the production of bloom; so if the wood be ripe enough, we may make use of the second or summer growth to get a good head on our plant as soon as possible. In fig. 31 it will be seen that two buds have been left on each shoot. In fig. 32 it will be seen that only one of them in each case has been allowed to grow. The others were removed after pruning (see Disbudding). There is no reason why all the buds should not have been left, and indeed the plant being a standard, and the object being to get a good head up it quickly, it would have been better to have left the buds to

develope into branches; but in that case the blooms which were borne on the buds that were left would not have been so fine. Fig. 33, I think, explains itself, and I do not think that anyone who has followed me thus far would have any difficulty in pruning it.

In the case of this standard it would be necessary, in following seasons, to cut clean out a good deal of the wood from the centre of the head, to keep it open, and to prevent the branches from crossing and getting entangled with each other, and so preventing light and air from getting in.

The foregoing remarks are also an illustration of close pruning applied to standards, but it must be borne in mind that the formation of the head in standards prevents us getting such fine blooms as we do from dwarfs. It is impossible to keep cutting down the heads of standards year after year—that is, if appearances require to be considered. I shall refer to the other system of pruning—long pruning, so called—further on, but it will be better at present to finish what I have to say further on close pruning.

I said in the introduction that if anybody went thoroughly into

any subject he soon began to find out that he could make improvements in his practice by turning aside now and again from the beaten track, and there is no doubt that this remark applies to pruning quite as much as to anything else in Rose growing. What I have written on the subject of close pruning so far is, to the best of my knowledge, quite orthodox, and may be found, or, at any rate, the spirit of it, in most books on the subject; but I am now going to say something that is not altogether orthodox, and it is this—that with a simple rule or instruction to cut every shoot on all the Roses in the place back to two eyes, a beginner might go into a garden full of Roses, and prune the whole lot, and provided he carried out the rule here laid down, the result of his labour would, in many cases, very much astonish the proprietors. Ninety per cent. of the Roses so treated would bloom, and that superbly; the other 10 per cent. would produce wood shoots of extraordinary vigour. If the beginner went through the same collection the following season, he would see at a glance, by the enormous rods made by these 10 per cents., that hard pruning in their case was a mistake. He would leave more buds to break, and so become at once a master in the art of pruning; or, if not a master, at least a very



Fig. 31.



Fig. 32.

promising pupil. The greater part of my own pruning is done on the system here advocated. With a few thousands of plants to go over, there is not time to put on a considering cap in each individual case, neither is it necessary, a glance is sufficient, but as a rule the shoots left are shortened to within about an inch of the ground line—sometimes a little below it.

Let me here say that I learned this very severe method of pruning in that school in which it is said that "Fools learn wisdom"—I mean the school of experience. During a very hard winter some years ago, Jack Frost with his icy breath killed nearly all my Roses down to the snow line—a good many of them, I regret to say, he demolished altogether. If I am not mistaken,

the roll call that spring revealed the lamentable fact that 115 Roses were killed right out. I was a Manetti man then—I am not now—that deadly season filled me up, destroyed my appetite altogether—for Manetti. I said to myself, “If this Manetti business is going to necessitate the purchase annually of 115 Roses, simply to replace losses, I shall try the Briar, and if after that there is still no improvement in the death rate, I shall resign.”

My pruning that season consisted of—manually, the removal of the dead wood; and verbally, the calling down of blessings (!) on the head of the late Dr. Manetti, and altogether I felt rather dismal. But when summer came I thought no more of my 115 slain; the superb blooms and the magnificent foliage took up and

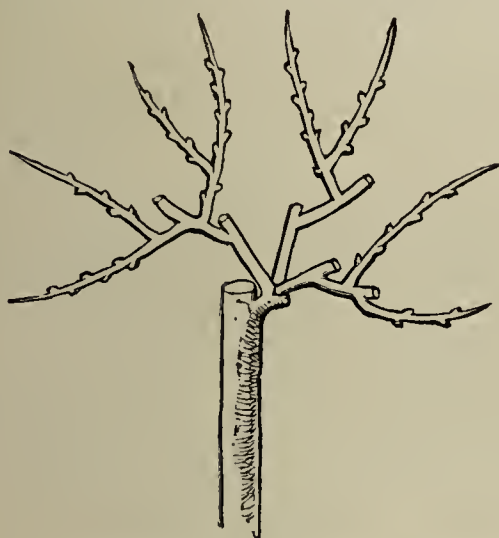


Fig. 33.

engaged my attention and admiration, and I there and then became, and have continued to be ever since, one of the hardest of hard pruners.

Wood more than two years old is not much use for the production of fine blooms. What we want is a constant renewal of young wood. If we turn to figure 34, which represents the same plant as shown on figs. 27 and 28 (page 168), we shall see the plant has thrown up two fine shoots from the base. Fortunately for our wishes Roses are almost constantly sending up these shoots from the base, and although at the end of the season the tops of these shoots are often not ripe, they are generally so at the base. These are the shoots we must look to for future blooms, and we must year after year cut out the old shoots and branches, allowing these new comers to take their place. Another advantage in close pruning is, that it encourages the plant to send up these new shoots, thus giving us an abundance of what we require, and enabling the plant to renew its youth like the eagle. They sometimes come up so thickly as to be puzzling to a new hand, but there are generally two or three which can be selected as being finer and riper than the others. These should be left and pruned for bloom, and the others should be cut out altogether, along with the old wood.

This renewal of the shoots, together with the fact that the union of stock and scion is always below the surface, or should be, if properly planted, is, to my thinking, one of the greatest advantages of dwarf Roses over standards. Standards about here almost invariably perish in two or three years (Gloire de Dijon is the only exception I know of) and nearly always from a kind of ossification of the union of the stock and scion. This, in my opinion, arises from this part being exposed to the winter weather partly, and partly from its being always out of the ground. Compare the union of a dwarf, which is, or always



Fig. 34.

should be, buried in the soil, with that of a standard of the same age. The bark round about the union of the dwarf is soft, supple, and of exactly the same nature as the bark of a true root—in fact, it is very often a starting place for a lot of roots. On the other hand, the bark round the union of a standard is hard, and dry, and old; in fact it is always a wonder to me that they live as long as they do.

No beginner ever does prune half hard enough. It requires a great deal of faith on the operator's part to cut away the nice long branches almost entirely. I never can get visitors to my garden to believe that I cut all my Roses down to the ground each year. As they walk round in the late summer (our Roses rarely bloom before July) and see shoots full of vigour, covered with large and perfect foliage and fresh and fragrant flowers, the shoots in many cases 3 feet high or more—I could find some 5 feet, I daresay—I have great difficulty in persuading them that their Roses would do quite as well, and grow quite as vigorously, if treated in a similar way.

Friends of mine often say, “I wish you would come and prune my Roses some day.” As I have a very strong suspicion that the result would end in my getting abused, I generally say, “Oh, yes! delighted—when shall I come? but, remember, I shall cut them all away.” “Oh! well in that case I had rather you did not come; I should not like to see the plants destroyed.”

A nurseryman friend of mine tells me of a somewhat similar experience, only it had a different ending. He was asked a similar question by a gentleman, but he agreed to go. He went, and, of course, cleared the decks. When the gentleman arrived home he gazed around, he could not believe his eyes, all his Roses had apparently disappeared. At an early hour the next day he was at the nursery, and my friend had rather a hot time with him. But when summer came, the tune was changed, the result was—well, just what it always is in such cases, provided other parts of the cultivation are not neglected—a grand success. The owner was delighted, and expressed his satisfaction freely. He, too, is now, no doubt, enrolled among the noble army of close pruners.

SHORT PRUNING—EXCEPTIONS.

Gloire de Dijon.—This variety requires very little pruning. The removal of the tops of the late-growing shoots, which are generally killed back by the frost in this neighbourhood, and the cutting away of old and worn out wood occasionally, is all that will be necessary. The blooms are produced on short laterals thrown out from the buds on the main shoots which have grown up during the preceding season.

Other exceptions are—all the vigorous-growing varieties among the Bourbon, Noisette, and Hybrid China Roses, although some of these answer well on the close system.

All climbing Roses are also exceptions. The whole of these exceptions require to have the branches left long for flowering, the unripe tips only being removed, while the weaker shoots may be cut away altogether. If the shoots are very long they will break more evenly if laid down on the ground horizontally until the buds have broken and commenced to grow.

LONG PRUNING.

Long pruning is applicable to all kinds of Roses which make long shoots or which grow very vigorously. All the ordinary vigorous varieties may be grown in this way. Such Roses as *Madame Isaac Perrier* and the new Rose *Her Majesty*, two very rampant growing varieties, are good examples of Roses which I fancy would require this treatment. *Cheshunt Hybrid*, too, answers well this way, but it is so accommodating that one can hardly go wrong with it.

Long pruning consists simply in leaving the branches reserved for blooming much longer than we should do on the close system, but we partly make up for this by removing some of the shoots altogether. Among the vigorous growers in the Hybrid Perpetual section, which generally embraces nine-tenths of most collections, I do not find any advantage in leaving the shoots more than 9 or 10 inches long, and I do not allow more than three shoots on any one plant. If a beginner finds, after the first season, that any of his Roses have produced vigorous wood shoots instead of blooms, he cannot do better than try this system with these plants. He will soon discover the happy medium, and a little observation will enable him to see at once where to cut to.—D. GILMOUR, JUN.

(To be continued.)

OPEN AIR PEACHES AND NECTARINES.

I READ with great interest Mr. Pettigrew's remarks, and also those from the editorial pen relative to the above subject (page 125), and do not doubt but what much good will be the ultimate result. There can be no gainsaying the fact that of late years the successful culture of

outdoor Peaches and Nectarines has fallen off very considerably, and if the truth must be told there is every probability of a still further decline in the same direction, unless it is made an employer's question, and the latter insist upon having outdoor fruit. Various are the reasons assigned for this falling off; but, strange to say, the one most frequently put forth—viz., that of climate—is the weakest, and will not bear close inquiry; at least, such is my own opinion, and I believe that any argument advanced in support of the deterioration of climate, or of any marked difference in the state of the weather now from that experienced in the days of our grandfathers, could be easily controverted by indisputable facts.

Having stated this much, I will give my opinion as to the true cause of so many failures in gardens where in former days there used to be success, and let me here parenthetically remark that I do not believe the present generation of gardeners are less capable men than their predecessors. The real cause of the great majority of failures at the present time I believe to be mainly due to one circumstance—viz., the same amount of care and attention is not bestowed on their cultivation as formerly, and this again in itself is due to the fact of a greatly extended cultivation under glass. The principal cause of this state of things is obvious, even to only casual observers of times and events. Glass is much cheaper now than formerly, and in addition to this we have a vastly increased wealth in the country. Notwithstanding this fact, however, I consider it a great mistake to neglect the outdoor cultivation of Peaches and Nectarines in those districts where they have been once known to succeed, for it cannot be denied that with fruit from the open air the season for good Peaches is considerably prolonged.

With glass-covered walls and copings a good crop of fruit is certain, and as a matter of course there are less worry, labour, and anxiety attending that system of culture compared with outdoor-grown fruit. There are still many gardens where walls of good trees may be met with, and also a few old-fashioned places that have not kept pace with the times in regard to glass structures, but where outdoor Peaches and Nectarines are important. In such cases as these the plea of deterioration of climate would be of no avail. Either the fruit must be successfully grown, or the man must go elsewhere, and would be considered incompetent.

Unquestionably there are some localities where at the present time these fruits cannot be grown as they could be in former days; as, for instance, many districts of Lancashire, where the atmosphere is so heavily charged with noxious vapours as to render success impossible; but in all other cases where they have been known to do well in days gone by I maintain they may be grown now, provided the right treatment is adopted. In the gardens here there are upwards of 200 yards of uncovered walls devoted to their culture, and if the matter rested entirely with myself a goodly portion would be covered with glass forthwith; but as such does not happen to be the case the best use must be made of existing circumstances and conditions, and the inevitable cheerfully submitted to. Without in any way wishing to be thought guilty of egotism, I think I may say we are favoured with a fair amount of success, our season for gathering ripe fruit usually extending from July to the first week in November, beginning with Alexander and Early Beatrice, and ending with Sea Eagle and Salwey. Although Peach culture is so well understood, broadly speaking, it may not be altogether without interest to refer briefly to a few details connected with the system as carried out here.

In the first place we make it a point never to neglect or cease to look after the welfare of the roots, for on these, so to speak, everything else mainly depends. It would never do in our case to allow them to penetrate into the subsoil—at least, to remain there for any lengthened period, experience having taught us that that dreaded disease, or call it what you will, the "Yellows," is the natural accompaniment; it has, therefore, become a fundamental rule in our practice to resort to periodical lifting, every tree young and old being subjected to this operation every second or third year. By this means the roots are kept entirely under control and within reasonable reach of the surface, so that they may receive the full benefit of annual top-dressings and waterings of liquid manure when the fruit is swelling. Each tree when lifted receives two or three barrowloads of fresh soil—turf when we can get it—together with half a dozen spadefuls of wood ashes or burnt refuse. In some localities all this trouble is unnecessary owing to the natural soil of the place being well adapted to the requirements of the trees, but even in such cases I would have recourse to lifting every third year for the purpose of keeping the roots near the surface, a circumstance that cannot well be over-estimated. This work should be done in the autumn months, the sooner the better after the trees have shed their leaves, and if they are in a condition anything approaching to a state of good health no apprehension need be entertained regarding a good crop of fruit the succeeding summer, providing other necessary details are duly attended to. We now come to the elementary part of the subject—i.e., pruning, training, and nailing or tying, and on which no lengthened comment is perhaps here needed.

One great object should be to adopt such a course of treatment during the summer months as will necessitate very little winter pruning, and this desired state of things can only be brought about by practising the disbudding and pinching back of young shoots in no half-hearted way, so as to leave little to be done at this time of year beyond the nailing or tying-in of successional shoots and such others as may be required for the extension and framework of the tree. One of our aversions in training is the overcrowding of young wood, and thus it is that we

allow a sufficient space for the full development of foliage between the shoots. When in flower protection is afforded by Russian and home-made straw mats, stout poles being fixed in front of the walls to prevent damage being done to the trees in rough windy weather.

I would here remark that a better but more expensive system of protection will be found in rollers and blinds made of frigid domo. To obtain a good "set" of young fruit much care and sound judgment should be exercised in the matter of protecting the flowers, especially during inclement or unpropitious weather. Occasionally there may be a day when bitterly cold hail and snow storms prevail. When such happens to be the case the trees are much better off with the mats or blinds down than they would be if exposed to the weather, bearing in mind that partial darkness for a time is far better than icicles and a crop of frozen stigmas. When the young fruits have commenced swelling fairly, or say when they are about the size of marbles, their number is considerably reduced by taking off the smaller and those which are ill-placed, leaving only such a number as we think sufficient for a crop, according to the state of each tree, no allowance being made for falling off when stoning; nor do we think it necessary, as such a thing rarely happens except in cases of overcropping or dryness at the roots.

Close attention through April, May, and June is very necessary in the matter of disbudding, pinching out abnormal and blistered leaves, and of keeping down insect pests. If the latter are not kept in abeyance a great amount of injury may be done in an incredibly short space of time. As a remedy and preventive the trees should be syringed over with some insecticide just before the first flowers begin to open, and once a week after the fruit is set, the practice being carried out for some time. For this purpose we find nothing better than concentrated tobacco juice mixed in proportion of one pint to four gallons of water; but no hard-and-fast line can be laid down on this point, as the article itself varies so much in quality. The last, but by no means the least, important point to be alluded to is that of mulching and watering during hot summer weather. At no time should this matter be overlooked or forgotten, as the Peach tree is very sensitive of any approach to dryness at the roots.—J. HORSEFIELD, *Heytesbury, Wilts.*

YOUR correspondent "E. B." is wise in bringing this important subject to the front again, especially as the trees now are needing attention in tying and nailing. Some people run away with the idea that Peaches cannot be successfully grown in the open. "E. B." draws attention to the fact that other pursuits has directed the gardener's time and attention. I may supplement his statement and give another fact, that there has been hundreds of Peach houses built these last few years, and that is another cause why less notice has been directed to outside Peach growing. No doubt it is very well if we have enough to supply the requirements of the family. One place I lived as foreman we had about 300 Peach trees under glass, where we could keep a supply from the first week in May till the end of October. Well, these favourable conditions do not happen to all of us. If we have no Peach house, what are we to do then? We must try to grow them on the open walls, which I assert can be done, and done well, if only careful attention and judicious management be exercised. The one great evil is neglecting the trees through the early spring, when they get "dirty." I had some marvellous crops last year, and had a supply from the third week in August till the 17th of November. I gathered twenty dozen from several trees, and as many as 400 fruits from one Nectarine tree (Victoria). I could go into details of management if it would be of any value to any of your readers who up to date have hitherto failed.—W. A. COOK, *Holme Wood House.*

[Any details our correspondent can favour us with will be most acceptable.]

RANGEMORE GARDENS.

OFTEN as I have visited these celebrated gardens I have never seen them looking so well as at present. The most notable feature is, perhaps, one range of houses about 80 yards long completely full of flowers; consisting of a fine house of Cattleyas, Cœlogynes, and Cypripediums. Most of the Cattleyas are C. Trianae and a few C. Percivaliana. A very fine show of about 400 blooms of the former, among them some very fine varieties. The Cœlogynes are in pans, about 2 feet across and masses of bloom, truly noble specimens. The next house contains the East Indian Orchids. This was gay with numerous varieties of Dendrobiums, Vandas, and Phalaenopsis. The next house in order is full of Camellias, with plants between 12 and 14 feet high in splendid health and loaded with blooms. Adjoining this is the Azalea house, filled with fine specimens so covered with bloom that scarcely a leaf is visible. Opening out of this house is the last of the range, a house filled with Cyclamen and Cinerarias. The Cyclamens are among the best I have ever seen, rich in colour, health, and vigour. Some of the plants in 6-inch pots have 100 blooms, standing up some inches above the leaves and with stems almost rivalling the Hyacinth. The Cinerarias are very fine. I measured some of the blooms, which were 3½ inches across. I noticed in another house nearly 1000 Souvenir de la Malmaison Carnations in 8-inch pots coming on for the London season. All the forcing houses show in various stages what will be, I have no doubt, good crops of fruit. I cannot help remarking what fine Grapes are still left in the fruit room. I counted over 100 bunches of Muscats in fine condition. This, I think, is exceptional for the time of year, the last of February.—F., *Grendon Gardens.*



CYPRIPEDIUM INSIGNE.

THE above Orchid is most useful for growing in 5 or 6-inch pots for general decorative purposes, and where such plants are required a good proportion of this *Cypripedium* should be grown, as they well repay for the little care and attention required. The blooms last several weeks upon the plants, and even when used in a cut state I know of no flower that will keep fresh for a longer period; and coming into bloom at a season when flowers of the choicer kind are not too plentiful makes it doubly valuable. I find them succeed most satisfactorily with much less care and attention than they are sometimes subjected to, as we often see them coddled in the Orchid house proper or in the stove. They do not require a high temperature, but if a rapid increase of stock is required, that can be accomplished much more quickly in a stove temperature than with cool treatment, but in a general way I find the heat of a vinery most suitable for them to make their growth in.

Anyone having large plants they wish to divide for growing in the above-size pots may take them in hand at once. They will bear division with impunity. When dividing, carefully shake away the compost they have been growing in, select about four crowns and sever them with a knife. Four crowns with the roots attached are about as many as can be placed in a 6-inch pot. When the dividing is completed, cut away any dead or bruised roots, and place them in clean pots that have about one-fourth their depth filled with clean drainage, the top layer of which should be fine, to prevent the soil getting down among the larger portion and so preventing the speedy egress of water. The soil I find them to succeed in is composed of strong turfy loam with a few pieces of charcoal, coarse sand, and a little dried cow manure pressed moderately firm in the pots. The centre of the plants should be raised slightly above the pot, and some of the roughest of the soil placed on the surface to allow the water passage through the ball. If the soil is moderately moist they will not require water for a few days if kept regularly syringed; but when they start into free growth and are making roots they require to be kept moist, but not sufficient to saturate the soil, which would soon cause it to be sour, and if such takes place it is very much against the plants making good progress, but after they have been in the pots one season there is little fear of their receiving too much water when in a free-growing state, for the mass of thick fleshy roots will allow the water to pass through the pots freely.

When they have completed their growth, remove them to a cooler temperature to harden a little, and then place them out in a cold frame, with just sufficient shade to prevent the sun turning them brown. Through the summer and autumn months I usually grow them with the *Primulas* in cold frames. When they are housed for the winter they can be kept cool, or a portion of the stock placed in an intermediate temperature will give an early bloom, while the remainder will come in for a succession. In the months of November, December, and January they are most useful, as after that time there is a plentiful supply of bulbs, &c., to come on for display.—W. SIMPSON, *Knowsley*.

ORCHIDS AT CHELTENHAM.

AT any time during the winter months few plants are more admired than the choicer Orchids when in bloom. Of this fact I was forcibly reminded a short time since when calling at Mr. Cypher's now celebrated plant-growing establishment at Cheltenham. The methodical and at the same time highly practical system adopted by Mr. Cypher has resulted in their highly successful culture. One of the most remarkable instances of this high class culture may be found in *Dendrobium Ainsworthi*, which everywhere is singularly happy, having stout growths from 12 to 16 inches long. While speaking of this valuable *Dendrobium* I am reminded that at the time of my visit the rose-coloured form was producing flowers from the current season's growth, a rather unusual occurrence, I believe. Another *Dendrobium* which promises to be equally at home is *D. nobile pulcherrima*. Others there are in numbers, such as *D. Wardianum*, *D. Findleyanum*, *D. heterocarpum*, and the ever welcome and enduring *D. Dearei*, which, on account of its lasting properties, makes it among the most valuable of Orchids when in bloom. Another Orchid grown in quantity here is *Odontoglossum Rossi*, a very pleasing and attractive plant at this time and of easy culture. The forms were many, but all were beautiful and cheering at this dull period of the year. One pseudo-bulb of this had a spike with five flowers upon it, an experience quite new to Mr. Cypher. *O. Rossi* album was also in flower, one plant of this latter being somewhat novel in appearance, owing to the sepals being spotted with green.

Lycastes were here in great force, and contained some exceedingly handsome and richly coloured forms. Vigorous, too, they were beyond a doubt, as the freedom with which they were producing flowers will amply illustrate. From one pseudo-bulb alone came a spike with fourteen flowers, another had eleven, and so on, and as there were no exceptions it may fairly be assumed that the *Lycastes* are in good hands and perfectly at home. The ever welcome *Vanda tricolor* and *V. tricolor suaveolens* were well in flower, the latter bearing about a

dozen fine flowers which are spotted with rich shining chestnut, the lip being pale violet.

Coelogynes were flowering well, but owing to the great demand for their chaste and lovely blossoms for wedding and other bouquets, and, indeed, in all choice floral arrangements, it can hardly be expected in an establishment of this kind to meet their flowers in quantity; still the expanding flowers were fairly abundant, and one and all were wanted as soon as they were ready for use. Among them the Chatsworth variety figured conspicuously, and should be found in all collections of choice and useful winter-flowering Orchids. I was rather too late to see *Masdevallia tovarensis* at its best. This highly useful plant is grown extensively, and coming at so useful a time renders it doubly valuable, since its glistening white flowers never seem out of place in any choice floral arrangement. The singular *M. bella* was also flowering. *Phalænopsis Schilleriana* was represented by flowering specimens, and among *Cypripediums* were *C. hirsutissimum*, very distinct in its densely clothed and deeply coloured stems. *C. Boxalli* was producing twin flowers from the same scape; numerous others were either in flower or showing, and the *Cattleyas* promised an abundant supply later on.—J.

ORCHIDS AT BLENHEIM.

"ORCHID culture is only in its infancy here," was the remark made to me by Mr. Bethell, the Duke of Marlborough's able gardener, one day last week. It is only two or three years since Orchids were made a specialty of at Blenheim, but at the present time there are fifteen houses full of them. Most of the houses are large and very convenient, but more are required, and are already under the course of erection. To accommodate all the plants the vineries are used for some, and the stove, in addition to a fine collection of foliage and other plants, has to find shelter for many, including fine pieces of *Dendrobium Dearei*, *Calanthes* of sorts, notably *C. vestita gigantea*; while the *Rose* and *Gardenia* houses have hundreds of baskets suspended from the roof. In the former of these are several large specimens of *Vanda teres* mounted well up to the light, and along the front within a few inches of the glass in pans and baskets are *Barkerias*, dwarf-growing *Lælias*, *Odontoglossum Oerstedii*, *Oncidium cheiroporum*, with many others thriving admirably. The *Gardenia* house is in two divisions. The *Gardenias* and *Stephanotis* are remarkably healthy and showing well for a quantity of bloom, while the *Dendrobiums* growing above these evidently enjoy the ammonia from the manure given the plants below. Some of the growths of *D. Wardianum* are already 18 inches in length.

The first houses that I entered were four low span-roofed ones about 40 feet long. No. 1 contains *Phalænopsis* grown in the same manner as those of Mr. F. A. Philbrick's, Bickley, and described some time ago in the *Journal*. *Angræum Leonis* is represented by 120 healthy plants. *A. Sanderianum* and *A. Scottianum* are also doing well. No. 2 contains quantities of *Odontoglossum Roezli*, *O. vexillarium*, and *Masdevallia tovarensis*. The whole are very clean and free from any attacks of yellow thrips, which too often disfigure fine plants in some of the best collections. On one side of this house are scores of imported *Cypripediums*, such as *C. Godefroyæ* and *C. niveum*. The system adopted in establishing these is very successful and worth practising in other places. Clean crooks are laid on the border, and on these are placed the imported plants; then a layer of moss covers the whole of the roots, which is kept moist. Some of the old roots are now as fresh as though they were made in this country. In No. 3 are some established *Odontoglossum blandum* with several growths each. Of *O. Rossi majus* there are 300 or 400 plants altogether, and many fine varieties are in bloom. *O. Cervantesi decorum* and some good forms of *O. Alexandræ*, in fact the very best varieties of the cooler-growing section are placed in this house while in flower. No. 4 contains imported plants. The *O. Alexandræ* are planted in the borders close together similar to the *Cypripediums*, only instead of moss fine peat is used, and the plants remain so until sufficient root is made for potting.

The fifth house, a long north structure, contains the cooler-growing *Cypripediums*; also large plants of *Ada aurantiaca* just showing bloom, *Coelogyne cristata*, large pans of *Disa grandiflora* with 200 or more flowering growths each, and in baskets hanging from the roof are numbers of *Epidendrum vitellinum majus*. The next is a span-roofed house, about 70 feet by 22 feet, with side stages and a centre one arranged in tiers of shelves, and is filled chiefly with *Odontoglossum Alexandræ*, which would compare favourably, as regards health, with any I have before seen. Some of the occupants of this house were subjected to a sojourn in the open air last summer, and the results are very gratifying, notably with *Sophronis grandiflora*, which made good growth, and the colour of the blooms is brighter than any I have seen grown under the ordinary treatment. Blenheim is favoured with a capital cool, shady, and moist place in the grounds for the experiment. A very convenient method is adopted for damping down most of the houses by having an inch-pipe fixed on to the main and carried just under the edge of the stages, with a brass jet fitted in at every 4 feet or 5 feet, and a valve at one end enables a man to damp down in two minutes, the work being done thoroughly, as the fine streams from the jets beat on the underside of the stages and fall lightly on the path and beds beneath, while a very fine spray scarcely noticeable falls on and among the foliage. Fine pieces of *Oncidium Cavendishianum*, *O. ampliatum*, *O. Lancéanum*, *O. sareodes*, many *Aerides*, *Cypripedium Lawrenceanum*, *Maxillaria Sanderiana*, and others occupy another house. The next house contains *Cattleya* and *Lælias* of sorts, *L. elegans* and *L. purpurata* having numerous large sheaths. There is here also a large specimen of *Cattleya Wagneri* in a basket.

The large *Cattleya* house, which is 109 feet long, reminds one of Mr. Sanders' Orchid house at the late exhibition. The rockwork is arranged at each end opposite the doors, and some plants in pots are stood in the recesses and projecting parts, while others are planted out in the pockets and crevices, and by a careful selection the right kinds have been selected for the positions. Among them are *Cymbidium eburneum*, *Pescatoreas*, *Warszewiczellas*, and *Zygopetalums*, which are all in grand health, the roots clinging to the stones, from which, no doubt, they receive their main supply of moisture. *Cattleya Trianae* was the chief species in bloom, of which there are many choice varieties. One was a particular fine colour and good form, and in addition had a broad stripe of yellow running through the sepals.

In the *Dendrobium* house were large pieces of *D. Falconeri*, *D. Jamesianum*, and quantities of *D. nobile* and *D. heterocarpum* in bloom, also *D. thyriflorum*, and others. In the East Indian house a large plant of *Aerides Fieldingi* was in flower. Specimen *Vandas* and *Angraecums*, &c., are in superb health. *Aerides Lawrenceae*, *A. Sanderianum* and *Vanda Sanderiana* are grown in numbers. *Ondotoglossum citrosium* in baskets, *Cattleya citrina*, *Oncidium triginum*, *Laelia anceps*, and *Trichopilias* fill another house.

A north house contains *Ondotoglossum cordatum*, *O. gloriosum*, and *O. Pescatorei*, with the *Masdevallias*. There are many large specimens of *Coelogyne cristata* in the various houses, giving a succession of flowers for cutting. A large amount of Orchid bloom is required for cutting, some of them being taken off almost as soon as expanded. But among others in bloom I noted many *Angraecum Leonis*, *Burlingtonia candida*, *Coelogyne cristata*, *C. e. maxima*, *C. flaccida*, *C. Gardneriana*, *Cymbidium eburneum*, *C. Lowianum*, *Dendrobium amethystoglossum*, *D. heterocarpum*, *D. primulinum giganteum*, *Ondotoglossum Alexandre*, *O. Cervantesi*, *O. Roezli*, *O. triumphans*, and *Oncidium Phalaenopsis*.—G. W. CUMMINS.

THE CULTIVATION OF TOBACCO IN ENGLAND.

MR. E. J. BEALE, F.L.S., read an elaborate paper on the above subject before the Society of Arts on the 2nd inst., concluding as follows :—

"The successful culture of Tobacco may be summed up in a very few words: attentive observation of the rules laid down by English experimentalists, rather than attempting to follow the customs of other nations, which are frequently impossible or undesirable in this country; and the exercise of daily observation, which will often suggest some improved system of procedure.

"I am favoured with the following report of analysis—so far as completed—of Messrs. Carters' Tobacco, now being conducted by Dr. Bell, at the Laboratory, Inland Revenue, Somerset House, but which was not perfected at the time of going to press.

<i>Virginia (partly cured).</i>	
	Per cent.
Nicotine	4.2
Ash.....	21.7
Nearly a maximum.	
<i>In Imported Virginian Tobacco the average</i>	
	Per cent.
Nicotine	5
Ash.....	18

"I have compiled the approximate cost of cultivating an acre of Tobacco as follows :—

	£	s.	d.
Rent of land and buildings, including rates, tithes, and taxes, at 60s. per acre	3	0	0
Three ploughings, at 10s. per acre each time	1	10	0
Two harrowings, at 1s. per acre each time	0	2	0
Nine loads farmyard manure delivered on land	2	8	0
Spreading farmyard manure	0	1	3
3 cwt. Peruvian guano at £12 per ton	1	16	0
£000 plants at about 15s. per 1000	3	15	0
Planting ditto—one man one day, 3s. 2d.; one boy one day, 1s. 3d.	0	4	5
Two horse-hoeings at 3s. per acre each time	0	6	0
Manual labour, hilling and side-hoeing twice over at 7s. per acre each time	0	14	0
Pruning, topping, and suckering at 8s. per acre	0	8	0
Cutting at 5s. per acre, carting to barn and hanging at 12s.	0	17	0
Firing, two loads waste hard wood to be found on the farm (charge for labour only)	0	16	0
Man's time curing and attending, &c., two weeks at 15s.	1	10	0
Stripping, sorting, bulking, and packing, say 3200 lbs. at 5s. per 100 lbs.	8	0	0
	£35	7	8

And assuming this to be the cost, and that the produce is sold at not less than 4d. per lb., Messrs. Carters' experiments work out a nett profit of from £10 to £24 per acre. The eighteen balance sheets from which I derive this information will be found fully set out in a book on English Tobacco culture which I have compiled, and shall shortly publish, and which Her Majesty the Queen has graciously commanded me to dedicate to her.

"The concluding words of an interesting paper, written by an American, upon the subject of Tobacco, will fitly conclude the remarks I have had the honour to make to you to-night :—

"If you have not a large stock of patience and perseverance, with a will to learn and a resolution to keep trying until you succeed, you have missed your calling, and had better try something else, for there is no royal road to success in Tobacco raising. But if you possess the true essentials, have the true and lasting pluck, you will succeed soon

or late, and, what is better, reap a full reward for honest, faithful toil."

[Those who wish to possess full details of Tobacco culture and preparation in England should procure Mr. Beale's beautifully finished, admirably illustrated, and exhaustive work, a copy of which we have just received. It is dedicated to the Queen and published by E. Marlborough & Co., Old Bailey, London, E.C.]

GRAPES.

YOUR able correspondent, Mr. W. Taylor, called attention a few weeks ago to the fact that in growing Grapes for market appearance was everything. This is most strikingly borne out by the remarks of a correspondent in a contemporary lately. He has been visiting a large market-growing establishment and gathering a few facts about the different varieties of Grapes grown there for sale. Out of about eight of our leading varieties of Grapes we find Gros Maroc heading the list; but what strikes one more forcibly is the statement that "it is worth as much again as the Black Hamburgh, and is ready at the same time." To those who are well acquainted with the flavour of the varieties in question the statement at first sight seems almost incredible when we think the public should choose to pay so much more money for an article considerably inferior in quality, but which is a little more taking in appearance, but I suppose carries and keeps better. However, so much the better for the market grower, for no doubt a much heavier crop may be brought to perfection on a Vine of this variety than on the Black Hamburgh. Although this variety seems to find so much favour with some growers, we find it is not generally the case. A large grower who has given it a fair trial has, we believe, almost discarded it in favour of Gros Colman, principally on account of its non-keeping properties.

Alnwick Seedling is another fine-looking Grape which also finds favour in the establishment referred to; it is said to keep fairly well into April, and the flavour also is described as very superior. I must say that this is quite contrary to my experience with this variety, for last year, in spite of every effort, I failed to keep it until November, and at its best the flavour was only very moderate indeed. In fact, if it had not appearance and the fact of its being an easy Grape to grow to recommend it, I scarcely know who would grow it in a private establishment. Buckland Sweetwater is again praised on account of its fine appearance, but the writer admits that its quality does not improve by keeping. To those who intend planting vineries and want a useful and sure variety as a companion to the Black Hamburgh, I would say plant Foster's Seedling; it has a robust constitution, is a good cropper, of sweet refreshing flavour, which improves with keeping. "The Duke" I have not yet had sufficient experience with to be able to recommend it. I have it grafted on Muscat of Alexandria, also Black Hamburgh, as well on its own roots.

Gros Colman in the establishment above referred to, as elsewhere, finds more favour than any other Grape; it seems to possess one feature that almost no other black Grape does—i.e., it continues to improve in colour almost as long as it hangs upon the Vine. We know an excellent grower who year after year has enormous crops of this Grape on his Vines; and to look at them any time during the months of September or October one would almost venture to predict that they would never be any blacker, but by Christmas time (when good prices are made) they are really very passable both in colour and flavour. It is said to colour well grafted on the Muscat of Alexandria. The flavour also is said to be much improved when inarched on this variety, a statement which Grape growers will be quite willing as a body to believe. I have a young Vine inarched to a strong branch of the Muscat, and from which I cannot doubt it receives much support, but I do not think the flavour in this case has been improved in the least. Anything which could be done in the way of improving the flavour of this variety ought, I am sure, to be taken up with spirit by all gentlemen's gardeners.

Our friend, Mr. Stephen Castle's experience, given on page 62, seems to be quite unique. There must be something either in his soil or treatment which suits Alnwick Seedling much better than ours does; and in this, as well as in the assertion that it is not generally a good-keeping Grape, I know I shall be supported by first-class growers. In fact, with ours this last season, being compelled to use them before the Hamburgs were over, because they would not keep, I was almost at a loss to know what to do. Had the last named been finished the case would have been different. The very cold dull season may have had something to do with it, but Hamburgs grown alongside of it were good in every respect. They were all quite ripe by the middle of September or earlier; therefore, I should think that soil, climate, &c., would have much to do with it. In appearance it is simply first rate, and does well to point out to visitors. I have not yet grafted this variety on the Hamburgh, but will do so this season, as I suspect that this is the agent which has served to give it such a high place in your correspondent's estimation. Perhaps he will say if what he has grown and what he praises so much are on their own roots. I for one shall be much interested in the Editor's verdict respecting his Alicantes and Mr. Taylor's Black Hamburgs next September. If the theory respecting the flavour of Alicante in the month of September become generally established, I am sure that there will soon be many more Vines of that variety planted than exist at the present, for undoubtedly it is a grand Grape in every way were it not for its watery flavour. Ours were coloured the second week in September, and have kept plump and good until the present, but still there is nothing like the flavour of a ripe Hamburgh.—WM. JENKINS, *Aldin Grange, Durham.*



THE SOUTH KENSINGTON EXHIBITION GROUNDS.—The Kensington Vestry have petitioned the Queen, praying Her Majesty not to grant the supplementary charter applied for by the Albert Hall Corporation enabling the applicants to acquire land at South Kensington belonging to the Royal Commissioners for the Exhibition of 1851, and the conservatory and other buildings thereon.

— **THE FUTURE OF THE CRYSTAL PALACE.**—The Provisional Committee appointed a short time ago in connection with the affairs of the Crystal Palace have taken steps towards the formation of a National Committee composed of noblemen and gentlemen, whose object shall be to maintain the Palace as a national institution. It is proposed to purchase the property and make it a People's Palace, and it will be the function of the new Committee to accomplish this by means of an extended public subscription, of the success of which the friends of the movement are sanguine.

— **ROSE SHOWS.**—Mr. Edward Mawley, Rosebank, Berkhamstead, Herts, will be obliged if secretaries of Rose and other horticultural societies where liberal prizes are offered for Roses, will send him the dates of their shows as soon as they have been definitely arranged. In addition to the fixtures published on page 170 last week, the following are received:—Richmond, June 29th; Hitchin and Winchester, July 7th; Harleston and Birmingham, July 14th. The North Lonsdale Rose Society, which is affiliated to the N.R.S., will hold its annual show at Ulverstone on the 22nd July, and not on the 15th as previously announced.

— **JUST** as we are preparing for press letters have arrived respecting the proposed **GARDENERS' ORPHANAGE**, which it is impossible to insert this week.

— **AMARYLLISES AT CHELSEA.**—The display of these gorgeous flowers in the nursery of Messrs. James Veitch & Sons promises to be highly imposing. About 1800 plants are now advancing rapidly, the flower stems being of great substance and the foliage pushing freely at the same time. A few flowers are open, and numbers of buds swelling and in the course of ten days or a fortnight one of the richest floral spectacles of the year will be afforded to visitors.

— **LIVERPOOL HORTICULTURAL ASSOCIATION.**—On Saturday evening, the 5th inst., Mr. F. Harrison, gardener to the Earl of Derby, Knowsley Hall, Prescot, read before the members of this Society an excellent paper on "Salads and their Culture." Only a moderate discussion followed, principally on the culture of Celery on ground deeply dug, and surface planting &c. opening out trenches on the ordinary principle. The cause of the Tomato disease was also discussed by Messrs. Ranger, Bardney, R. W. Ker, Harrison, White (Chairman), and others. The usual vote of thanks brought the meeting to a close. Mr. Harrison's paper will be printed in our columns as soon as space permits.

— **WE** extract the following note on the **INFRINGEMENT OF COPYRIGHT** from an evening contemporary:—"Mr. Marten, Q.C., moved before Mr. Justice Kay, sitting in the Chancery Division, for an injunction in the action of 'Bowles v. Robinson,' to restrain the defendant from copying into his journal certain copyright articles which had appeared from time to time in the plaintiff's journal. The plaintiff is the proprietor of a journal or magazine entitled *The Lady*, and the defendant is the proprietor of the *Home and Farm*. A list of fifty special articles which had appeared in *The Lady* were re-published entirely or only slightly altered in *Home and Farm*. The defendant, for whom Mr. Farwell appeared, said he received the articles as original from one of his oldest contributors, and he believed them to be original when he accepted them. The defendant now apologised, and would submit to a perpetual injunction and pay costs. Mr. Marten asked for an inquiry as to damages, to which the defendant also consented. His Lordship made an order for a perpetual injunction against the defendant, with costs up to the present, but reserved the costs of the inquiry."

— **WE** have received the prize schedule of the **BIRMINGHAM ROSE SHOW**, which is announced to be held in the Gardens, Edgbaston, on Thursday and Friday, July 14th and 15th, so that it seems two-days Rose Shows that are so unpopular with many rosarians are not quite extinct. The prizes range from £5 to 10s. Mr. Hugh Nettlefold is the Honorary Secretary.

— **MR. HARTLAND** sends us from Temple Hill, Cork, flowers of the early **DOUBLE DAFFODIL RIP VAN WINKLE**. In the fashionable parlance of the day this would be described as an artist's flower. The corolla and perianth segments are so much divided that they represent a conglomerate mass of pointed florets. The colour is deep yellow, suffused with green. This form appears about as dissimilar from ordinary Daffodils as Japanese Chrysanthemums are from incurved blooms.

— **THE** preparation of the **AMERICAN EXHIBITION AT WEST KENSINGTON** is proceeding rapidly, and the ornamental grounds, under the charge of Mr. W. Goldring, are advancing satisfactorily. This portion of the Exhibition is likely to be a very interesting one to horticulturists, as a large number of the most handsome and characteristic American plants will be represented, and the general design appears to have been very carefully considered.

— **ZONAL PELARGONIUM CONSTANCE.**—Mr. D. Thomson writes from Drumlanrig:—"Several of your correspondents have recently been giving excellent directions for the management of these most useful Pelargoniums for winter flowering. In the excellent lists that have been appended to the respective remarks I have not noticed *Constance* named, and as I have grown it for many years, and consider it the best pink variety I have ever seen, I take this opportunity of recommending it. It is, in fact, a perpetual bloomer, and I have had plants of it that have been crowded with large and handsome trusses for eighteen months without intermission. It has the good quality of not "drawing" and becoming "leggy" in heat during winter. The colour is a fine rosy pink, trusses large and produced in great abundance; altogether *Constance* is a splendid variety."

— **AT** the fortnightly meeting of the **BIRMINGHAM GARDENERS' SOCIETY**, held on the 2nd inst., Mr. C. H. Herbert, the foreman plant grower at Mr. Hans Niemand's Nursery, Birmingham, read a well thought-out paper on "Two of the Most Useful Winter-flowering Plants," and selected the Cyclamen and the Bouvardia, giving the early history of both plants, with full details as to cultivation. In reply to a question from one of the members as to the most desirable varieties of Bouvardias to grow, Mr. Herbert recommended:—Whites—Vreelandi and Humboldti *Corymbiflora*; Pinks—Priory Beauty and Queen of Roses; Scarlet—Elegans; Yellow—Flavescens. Doubles—Alfred Niemann, white; President Garfield, pink; and Sang Loraine, vermilion. There was a large attendance of members, and a good discussion followed.

— **MR. GOODACRE** communicates the following note on **CURLED AND PLAIN PARSLEY**:—"Parsley is one of those important essentials of everyday life that the kitchen must have a daily supply. I never remember such a difficulty to do this as it has been this season. I do not think we have been less diligent in its culture, but I blame myself for indulging in these 'extra fine curled' strains, which I think are not so hardy as the plainer leaved common sort is. The autumn was extra fine very late, and up to December we had Parsley 18 inches high with leaves almost as broad, with roots as fine as Parsnips, but on the approach of severe weather this melted away root and leaf as if it had been boiled, and I find the roots of the protected are now quite rotten, whereas the old plainer-leaved sort is quite sound both top and bottom. Is this the general state of the Parsley crop?"

— **THE** February number of the **BULLETIN OF MISCELLANEOUS INFORMATION**, issued from the Royal Gardens, Kew, gives some particulars respecting the Cape Boxwood, *Buxus Macowani*, a recent discovery, the first representative of the genus found in South Africa. It is thought that the wood will be a useful substitute for true Boxwood for engravers, but one report does not speak very favourably of it for that purpose. The remaining portion of this issue is devoted to some correspondence respecting the "Industries at Mauritius," in which several valuable suggestions are made as to the plants that could be profitably cultivated there. A memorandum by Mr. D. Morris is founded upon an

exhaustive report received from Mr. Horne, and which has been forwarded to the Colonial Office.

— MR. JOSEPH MALLENDER sends the following SUMMARY OF METEOROLOGICAL OBSERVATIONS AT HODSOCK PRIORY, WORKSOP, NOTTS, for February, 1887:—Mean temperature of month, 38.5°; maximum on the 27th, 55.6° minimum on the 9th, 20.6°. Maximum in the sun on the 28th, 103.8°; minimum on the grass on the 9th, 13.3°. Mean temperature of air at 9 A.M., 36.8°. Mean temperature of soil 1 foot deep, 37.5°. Nights below 32°—in shade nineteen, on grass twenty-three. Sunshine—total duration in month, 103 hours, or 38 per cent. of possible duration. The brightest day was the 27th, and we had five sunless days. Total rainfall, 62 inches. Rain fell on eight days. Wind—average velocity, 10.5 miles per hour. Velocity exceeded 400 miles on six days, and fell short of 100 miles on three days. Approximate averages for February.—Mean temperature, 40.2°. Rainfall, 1.63 in. Sunshine (six years) 50.7 hours. A very fine dry month, frosty mornings, and fine bright days; very small rainfall, and a considerable excess of sunshine.

— THE last monthly meeting of the ROYAL METEOROLOGICAL SOCIETY was held as usual on Wednesday evening, at the Institution of Civil Engineers, 25, Great George St., Mr. W. Ellis, F.R.A.S., President, in the chair. Mr. E. T. Edwards, Mr. D. Fitzgerald, C.E., Mr. T. B. Groves, F.C.S., and Mr. W. W. Midgley were elected Fellows of the Society. The adjourned discussion on the Hon. R. Abereromby's paper "On the Identity of Cloud Forms all over the World, and on the General Principles by which their Indications must be Read," was resumed, and the following papers were read:—1, "Remarks Concerning the Nomenclature of Clouds for Ordinary Use," by Professor H. H. Hildebrandson, Hon. Mem. R. Met. Soc. 2, "Suggestions for an International Nomenclature of Clouds," by the Hon. R. Abereromby, F.R. Met. Soc. Both Prof. Hildebrandson and Mr. Abereromby have paid great attention to the question of the forms of clouds, and having recently conferred together they have agreed to recommend for international use the following ten principal varieties—viz., high-level clouds: Cirrus, cirro-stratus, cirro-cumulus. Middle-level: Strato-cirrus, cumulus-cirrus; and low-level: Cumulus, stratus, strato-cumulus, nimbus, cumulo-nimbus. 3, "The Influence of Weather on the Proportion of Carbonic Acid in the Air of Plains and Mountains," by Dr. W. Mareet, F.R.S., and Mons. A. Landriset. The authors give an account of some experiments which they have made on the proportion of carbonic acid in the air at Geneva, and on the summit of the "Dole," the highest point of the Jura chain, the difference in altitude being 4193 feet. The results of these experiments show—1, That in fine clear weather on a mountain chain of moderate Alpine altitude, and in the adjoining valley or plain, the atmosphere holds the same mean proportion of carbonic acid at both places; and (2) that when the summit of a mountain chain is in a fog—a circumstance which frequently happens in an Alpine district, the air in the fog contains a smaller proportion of carbonic acid than it would hold in fine clear weather. The Secretary, Dr. Tripe, read a letter received from Sir F. Abel, organising Secretary to the proposed Imperial Institute, inviting the Society to draw the attention of the Fellows to the undertaking, with the view of their contributing towards it. The President stated that copies of the letter and of the accompanying paper explanatory of the scheme would be forwarded to each Fellow.

— WE have received the first number of a new French Horticultural Journal called "Le Jardin." It is the same size as the *Journal of Horticulture*, but consists of only sixteen pages, and is illustrated with woodcuts, which we recognise as having done duty on more than one occasion. We should have preferred to have seen our new contemporary start with more novelty and youthful vigour; but periodical gardening literature has not been very successful in France hitherto, and we must therefore commend the caution displayed by the proprietor till he has been satisfied as to the success of his undertaking. The list of contributors is a very rich one and ought to contribute to the success of the new paper. It contains many of the greatest cultivators and best horticultural writers in France, and is under the direction of the well known M. Godefroy-Lebeuf of Argenteuil, near Paris. We wish it every success, and hope that the amateur French horticulturists, of whom there must be an immense number, will awaken to a consciousness of the pleasure that can be derived from a perusal of such a publication as this promises to be, for the articles are well written and practical.

— AT the ordinary meeting of the ROYAL METEOROLOGICAL SOCIETY, to be held at 25, Great George Street, Westminster, on Wednesday, the 16th instant, at 7 P.M., the following papers will be read:—"Notes on Taking Meteorological Observations on Board Ship," by Capt. D. Wilson Barker, F.R. Met. Soc.; "Marine Temperature Observations," by Hugh Robert Mill, D.Sc., F.R.S.E. After the reading of these papers the meeting will be adjourned, in order to afford the Fellows and their friends an opportunity of inspecting the Exhibition of Marine Meteorological Instruments and Apparatus, and of such new instruments as have been invented and first constructed since the last Exhibition.

— THE monthly parcel of MESSRS. CASSELL & CO.'S PUBLICATIONS contains Part 38 of "The Encyclopædic Dictionary," pp. 65 to 128, having advanced to the word "Harp," in the same excellent style as the earlier parts. Part 97 of "Familiar Garden Flowers" deals with the Japanese Anemone and single Dahlias, both illustrated with coloured plates; and Part 20 of "Familiar Trees" is occupied with the Sycamore, from which we extract the following note:—"THE SYCAMORE.—This tree is essentially a native of central Europe, occurring most abundantly in wooded, mountainous situations in Germany, Austria, Italy, and Switzerland, in which last-mentioned country it ascends on dry soils to an altitude of nearly 3000 feet above sea level, suffering but little from frost or snow. It will grow in any soil, but prefers dry and well drained ground to stiff clay or loam. It will grow in exposed situations even on the seacoast, and owing to the stiff angular mode of growth of its branches giving it an exceptionally strong 'spray,' as it is technically termed, few trees are better adapted to act as a shelter from the winds in spots. Even when the winds blow strongly in one direction for nine months out of the twelve the Sycamore will retain its symmetrical outline, its head not leaning more to one side than another. It propagates itself rapidly by seed, which is as pointed out by Professor Thomas Martyn, an argument against its being indigenous in this country, since in that case it would have been more widely disseminated than it is. All our early writers, indeed speak of the Sycamore as a cultivated species, from Turner in 1551, and Gerard in 1597, to Parkinson and Ray, several of these authors alluding to its value in avenues and walks on account of its shade. It is a tree of rapid growth, reaching a good height in a short time. Trees ten years old are recorded as reaching 25 or 28 feet in height, whilst the species reaches its full growth of from 50 to 60 feet at an age of as many years. The tree requires, however, to be eighty or a hundred years old before its timber arrives at perfection, and the ordinary longevity of the species is stated at from 140 to 200 years, though several cases of greater age are on record.

PÆONIES.

GREAT improvement has been effected during the past few years with these plants, until they now rival the Rose in beauty and delicacy of colour, while their fragrance is delicious. By some the large beautiful flowers of the Pæony are preferred to the Rose, but I think the Rose amongst hardy plants stands first in the estimation of the public, and I unhesitatingly place the Pæony second.

The display of Pæonies at the Royal Horticultural Society's great show, held in Wavertree Park, Liverpool, were indeed worth seeing. No other feature of the great show was more beautiful, or attracted greater attention. Pæonies are not so popular as they ought to be, simply because they have not been generally exhibited in good condition and in sufficient numbers to bring them before the public. They are certain to become one of the most highly esteemed class of plants in cultivation for their easy culture and lasting properties. Managers of exhibitions would do well to bear Pæonies in mind when arranging schedules for the year. Provision is often made for Dahlias when the exhibitions are held too early to have them in good condition. Why not devote these classes to the charming flowers that Pæonies produce, and allow the Dahlias to be shown in their season later in the year? No flowers could add greater attraction to an exhibition than these, if arranged in sixes, twelves, eighteens or twenty-fours; in fact the same course might be followed as with Roses, Chrysanthemums, Dahlias, and other similar flowers. In the open classes there would not be any great difficulty in getting collections of seventy-two distinct varieties, for there are at least one hundred or more now in cultivation; but, however, this question must be left to those who are appointed by the committees of the various societies.

Apart from their adaptability for exhibition purposes, they are invaluable where a large supply of choice flowers is required for cutting, for they last a considerable time in water, especially if cut before they are fully developed, for they will then expand their

large delicate petals. If the flowers are cut in a young state they travel well, no flowers better, or with less care in packing, and if placed in water on arrival at their destination, they will continue to develop, and last as long, or longer, than if they had been left upon the plant. No collection of hardy plants, however choice, can be considered complete without the Pæonies. A few, if only half a dozen, should be included in all gardens.

It may be urged against these plants that, unlike the Rose, they only flower once in the year, and their season is of short duration. This is very true, but no one despises or discards the old Moss Rose because it only flowers once, and then for a short time only. This is no argument why the Pæony should not be planted. They are noble stately plants when well developed, and are highly effective early in the year. They are amongst the earliest of border plants to appear above the ground, and the crimson foliage of the majority is as beautiful as a bed of flowers. When massed together the effect of the foliage early in the season is grand. They are much more ornamental than many other plants that are grown for the purpose.

Objection may be urged against them for mixed borders because they occupy a large amount of room, and their foliage begins to present a shabby appearance by the time many other plants are arriving at their best. But if we discarded all plants of this nature we should lose from our beds and borders many valuable early flowering plants which are as indispensable, or even more so, than those that flower later in the year.

I certainly do not recommend a mixed border for them where the dotting system is practised; but if a better and more suitable place cannot be afforded, rather than be without them I should certainly grow them under such circumstances. They are best in a bed or border by themselves where their requirements, which are few in number, can be attended to when occasion requires. They must occupy an open sunny position, away from trees, the roots of which would soon take possession of the bed and impoverish the soil. They will grow and do fairly well near trees and in shrubby borders, but they develop more rapidly, and display greater beauty, when grown in an open place by themselves.

Pæonies will flourish in any garden soil provided it has been rendered fertile by the addition of plenty of manure. On shallow light sandy soils they suffer considerably from drought if a little special cultivation is not given them. The ground to commence with should be deeply dug or trenched—if of such a nature to allow of this being done—and liberally manured before planting; in fact they are worthy of as good a preparation as Roses. They will thrive better on soil dug one spit deep that is moderately heavy and retains moisture, than on light soil, even after trenching.

Planting is done in the autumn and spring; obtained in pots they can be planted in open weather up till the middle of April, or even later. My advice to purchasers is to obtain strong plants to commence with, even if a trifle more has to be paid for them. The plants should be placed in rows at least 2 feet 6 inches apart each way. Care should be taken to select a place for them where they will not need disturbing for some years at least. They do best when left alone after planting, and therefore some importance must be attached to the position selected for them. These plants are kept in good condition after they are once established by a liberal dressing of manure annually, which can be forked into the surface. If they are growing on light dry soil they are greatly benefited by occasional supplies of liquid manure, and mulching to assist in keeping the ground moist about the plants. When they are grown together in a large bed or border they need very little staking. When grown singly, the large heavy flowers, if they become wet, weigh the branches down, and staking becomes essential. When grown together, a few stakes and a cord run round the outside will be ample to keep them in their proper position.

The following is a selection of thirty of the best varieties. Light varieties, which, to my taste, are most lovely, predominate. Alba superbissimus, sulphur white; Alice Julvecourt, blush white flaked with crimson, very fine; Madame Crousse, white; Camille Calcot, deep rose, sulphur centre; Charles Gosselin, flesh; Comte de Nanteuil, rose salmon, reflexed; Comte de Paris, rose lilac, centre of petals yellow; Duchesse d'Orleans, rosy lilac; Duchesse de Nemours, rose, salmon centre; Duc de Wellington, very fine white; Etendard du Grand Homme, large and double, brilliant rosy purple; Eugene Verdier, fine, delicate flesh; Festive, white centre, bordered carmine; Globosa, rosy lilac, buff centre; Grandiflora superba, lilac, centre salmon; La Vestale, white, tinted crimson, yellow centre; Pottsi superba, purplish crimson; Louis Parmentier, light rose; Delicome Verbitt, white, fine; Souvenir de Gaspard Calcot, deep pink; Modeste Guereu, rose; Magnifica, flesh and carmine; Madame Chaumy, rose, very double; Lutea plenissima, sulphur; Splendida, delicate rose; Grandiflora carnea, blush white; Albiflora anemonæflora, magenta purple; Tricolor grandiflora, pale rose, centre creamy white, very distinct; Whitley

fl.-pl., white, very double, and Victor Lemoine, bright red.—A NORTHERNER.

THE LATE MR. JAMES VAIR.

I THINK that all those readers of the *Journal of Horticulture* who had the pleasure of knowing the late Mr. J. Vair, will have felt deep regret at his somewhat sudden death on the 24th ult. I had the honour of serving under him as plant foreman at Dangstein, from July, 1857, to November, 1861. I always received great kindness at his hands, and shall ever look back with pleasure to my association with him. He was a most enthusiastic gardener, thoroughly devoted to his profession and to the interests of his appreciative employers, by whom he was held in the highest estimation. He was a first-class plant grower, and particularly excelled in the cultivation of Orchids, more especially those gems of the vegetable creation, the genus *Anætochilus*, the collection at Dangstein being at that time one of the finest in the kingdom.

He was also an ardent admirer and cultivator of Filmy Ferns and *Sarracenias*. The rare and curiously beautiful Lace or Lattice Leaf Plant, *Ouvirandra fenestralis*, was one of his especial favourites, and which he succeeded in bringing to very great perfection.

Although he was of a quiet and retiring disposition I well remember the great pleasure it afforded him to show visitors through the noble plant houses at Dangstein, and describe to them the various treasures they contained. As, through the kindness and liberality of Mr. R. H., and Lady Dorothy Nevill, the gardens were always open to visitors of all classes, Mr. Vair became acquainted with many eminent and distinguished persons.

After the death of Mr. Nevill Dangstein was sold, and the rare and valuable collection of plants also. Mr. Vair, however, as stated last week, continued in the service of Lady Dorothy Nevill at Stillians Tower, Sussex, till his death. An eminent gardener, a genial companion, a warm-hearted and steadfast friend, he has gone to his rest, and I cannot better conclude this notice of my old and much-respected friend and master than in these words:—

"He was a man take him for all in all,
I shall not look upon his like again."

—WALTER G. GAIGER, *Burton Closes, Bakewell.*

EUCHARIS GRANDIFLORA.

THIS bulbous plant occupies, as it has done ever since its introduction into this country some years ago, a foremost place in all collections of choice plants. This is not to be wondered at, seeing that where a goodly number of plants are grown it can be had in flower all through the year by subjecting the plant to a judicious course of treatment. There is no more manageable or accommodating flowering plant that I am acquainted with than this. I have never experienced the slightest difficulty in growing and flowering it to my satisfaction, and I have no knowledge of the *Eucharis* mite other than that derived from the horticultural press and friends, whose plants are, or have been, affected with that pest. But judging from the information thus acquired, together with the appearance of a friend's plants some time after I had given him several pots of clean strongly growing bulbs, I am fully convinced that in many cases it is the treatment which brings about the disease—that is to say, if strong healthy plants to start with are kept in a low temperature and saturated with water at the roots, disease is sure to follow.

Over-potting, too, like over-watering, must be avoided if satisfactory results are to be secured, and to achieve success it is not necessary to repot the plants every year. Previous to the last potting, March 13th, 1885, our plants of *Eucharises* had not been disturbed at the roots for four or five years, and during that time we have had flowers more or less. However, I think two years, or three at the most, are quite long enough in a general way to allow the plants to remain in the same soil. At the date indicated we potted our plants in a compost consisting of three parts good fibry loam impregnated with iron, and one of pulverised cow dung, charcoal, and lime rubble, with a dash of fresh soot, well mixed, in well-drained pots, having a sprinkling of fresh soot immediately over the crocks to prevent the ingress of worms, followed by a layer of sphagnum moss.

In potting the bulbs, which had all the old soil shaken off their roots, and were assorted at the time and kept close to the surface, the soil was pressed moderately firm about the roots, which were placed in their natural perpendicular position. The pots containing the bulbs so potted were then stood on the centre bed of a small span-roofed plant stove, underneath which are two hot-water pipes covered with coarse gravel, with a couple of inches thick of fine on the top, and supplied with tepid water to settle the soil about the roots, and the plants were afterwards shaded from bright sunshine until root action had taken place so as to prevent the foliage while flabby being scorched. After this the plants received no water excepting a sprinkling morning and afternoon when the house was being damped with the syringe, until the roots had pushed, which they did freely. Tepid liquid manure was afterwards given to the roots, with the result that within four months from the time of potting these plants had filled their pots with roots, and at the same time developed plenty of large dark green leaves of firm texture, as well as several spikes of well developed flowers. Water was then withheld from the roots, when, after an interval of a few weeks' rest, most of the bulbs sent up a flower spike, and then tepid liquid manure was again given to the roots, continuing the application for two or three weeks after the plants have done flowering, when water should be again withheld from the roots until the flower spikes appear, when it will be again

given. Thus treated plants of this beautiful Lily, which were in full flower early in October last, have flowered again, and, as already stated, provided there are sufficient plants for small batches to be operated on at short intervals, a supply of Eucharis flowers may be had all the year by giving the plants ordinary stove temperature.—W. H. W.

"CHRYSA nthemums AND THEIR CULTURE"—ANSWER TO MR. GARNETT'S CRITIQUE.

(Continued from page 174.)

FOLLOWING Mr. Garnett's notes on page 156, his experience relative to the forming of the buds from the earliest stages quite coincides with mine, excepting that the plants at Swanmore do not show so many "crown buds" as they appear to do at Wakefield. If he reads page 60 of my work he will find I make mention of other buds—viz., one forming in July, which should, of course, be removed. Such plants, in my experience, do not show any intermediate "crowns," but only one "crown bud," which must be "taken" if it forms at about the date I advised. Mr. Garnett is very full in his description of the "crown bud" formation, but for all that he is not sufficiently clear and plain to that class of growers which we have most in our minds—viz., "beginners." He does not show them by any form how they are to determine "if the plant is in a ripe condition, the wood consolidated and stored with elaborate secretions," or whether "the blooming propensity will preponderate over the growing propensity;" or, on the other hand, he throws not the slightest light how they are to know "if the plant is still grossly full of crude sap." Without some other guide than these "scientific" terms how are they to understand whether it will be a full plump bud or a hen-and-chicken one? He says it may be from over-feeding and other well known causes. (What are the well known causes?) Instructions far more simple than all these are required to enable beginners in the cultivation of the Chrysanthemum to produce the high class blooms.

Referring to the third of the sections compiled, the varieties he names are not a good criterion to set up; for who would think of growing such varieties nowadays with the hope of winning prizes in good company (as I take it, the primary object of such cultivation in most cases is the exhibition table) with James Salter, Henri Jacotot, or the Beverleys among the incurved? The latter are about the worst that could be selected to represent that section. Such sorts should not be set up as guides to cultivation of the highest class, and no other but the highest order of merit will do nowadays. If these are the varieties Mr. Garnett pins his faith to and sets them up as criterions and models of his highest class flowers, that part of the public with even little experience will readily decide what to expect from that quarter; a poor chance indeed would they stand in good company.

Some three or four years since many growers were led away with the "new departure" (so to speak) system of Chrysanthemum culture for best blooms—viz., cutting down the plants about the time which Mr. Garnett names, which I take it as being of a high character to the method he advocates for the varieties—namely, stopping in June. What was the consequence? Why, serious disappointment to those who were expecting cut blooms of the highest class, and a quick return to the older and much more successful method.

I did not say that the dwarf plants which produce the unaccountably fine flowers which are sometimes to be had are dwarf through being topped or broken through. Mr. Garnett infers that I do. I say that sometimes they are produced when the plants are allowed to break naturally, and still remain comparatively dwarf.

With regard to the topping of the varieties Eve and Mabel Ward, which I advised, this has been practised a long time and by some of the "celebrated men of the North," who adopted this plan successfully with the first-named precarious kind quite eleven years since; such also has been my experience, although we have now discarded both. Varieties which produce such small narrow petals do not carry as much weight with good judges as do others with broader florets and of better forms, unless they are presented in exceptional good condition, then they are telling. My experience of these two kinds is that they constitutionally differ from the general run of other sorts. Why, I know not.

Further on Mr. Garnett says, Yorkshire growers pin their faith on the second "crown" on stopped plants. I ask, Where have these Yorkshire grown blooms been on view that we are asked to accept as conclusive of Mr. Garnett's advice? I have not yet heard that they have shone so very bright as to be taken as a standard of excellence. In an argument one likes to have something substantial to fall back upon.

Again referring to the topping question, Mr. Garnett seems to infer that I am in favour of topping the plants at 8 inches high, whereas I quoted what some others practise, and I distinctly pointed out that blooms produced from such plants are not always of the first class, as they lack the two most important points—viz., depth and solidity; and I venture to say that persons who follow Mr. Garnett's advice relating to topping even the third section will find themselves a long way from the front rank when November shows come round; more particularly if they depend upon such varieties as Henri Jacotot, James Salter, and the Beverleys. No, Mr. Garnett, if you are going to teach growers to take leading positions you must give them other materials to work with than such varieties as above quoted.—E. MOLYNEUX.

THE CULTURE OF ACHIMENES IN HANGING BASKETS.

ON page 112 your able correspondent, "O. T.," directed the attention of readers of the Journal to the cultivation of the above named;

and while I fully endorse all he states in favour of the cultivation of Achimenes, I would point out that conservatories are usually kept cool and airy to induce the various flowering plants to retain their beauty as long as possible, and this at the time when, experience has taught me, the Achimenes requires a much more humid atmosphere, and were I to plant and attempt to grow them in such a house I should expect an immediate check to the young plants, and ultimate failure. Then, in what way can the baskets receive the abundance of water necessary, often twice daily, without causing a great amount of labour in drying up water from the paths, so necessary to be kept clean and dry in conservatories? The house in which your correspondent grows them so well must of necessity be kept much warmer and have a more humid atmosphere than is generally found in the majority of conservatories close to or attached to mansions.

Although Achimenes are not grown in large numbers here, I was some few years ago responsible for the successful growing and flowering of these lovely plants in large numbers of eleven varieties for conservatory and house decoration, and for both purposes they are most valuable. The mode of culture pursued I will briefly detail. During the month of February the tubers were removed from their winter quarters to the potting shed, shaken out from the soil in which they had ripened, grown, and flowered the previous year. After sufficient of the best tubers had been selected they were at once placed in boxes and pans prepared for them, and started in an ordinary stove temperature upon any available shelves. An early vinery is a good place for them, and in cases where Vines are forced early the temperature will at this time be very little lower than that of a stove. Plenty of light after growth commences is very essential, for if drawn while in the seedling pans they are partially spoilt for the whole season.

When large enough to handle is the time to transplant them into baskets, pans, and pots according to the requirements of the grower; and where the potting shed is, as they are generally found to be, connected with fruit and plant houses, that is the place for planting operations; and for baskets suspend one at a time from the roof of the shed within easy reach of the potting bench and soil to be used, then let a man or boy steady the basket while the young plants are being transferred by a careful hand who has done, or at least assisted in the same work before. As each basket is filled have them removed to an early vinery and temporarily suspended by the side of the path, and as the young plants will be benefited with a little shade for a few days the foliage of the Vines will answer their wants. Syringe them freely two or three times daily until growth commences again, when they may be watered, and from this time never allow them to become dry until the end of the flowering season. Five or six days is generally long enough for them to remain under the shade of Vines, after which they must be moved and suspended in stoves or plant houses, where the temperature is not less than 60°. Pots and pans are treated the same as baskets with one exception, that of being suspended. Liquid manure in small quantities is beneficial to them until they commence flowering, but not after, and when at this stage is soon enough to remove them to the conservatory, after which they will gradually take water in less quantities. The compost advised by your correspondent on page 113 is just what I have found to suit them.—A. WATERS.

PRESERVING HARDY FLOWERS FROM SLUGS.

THIS is the time of the year that outdoor flowers are most welcome, and as a rule most liable to the ravages of slugs. My borders are filled with Anemones in variety, Narcissi an almost complete collection, Snowdrops in variety, more than a dozen variety of Croci, including Carter's Seedlings, with Tulips, Hyacinths, &c., all of which are now either blooming or preparing to do so. For many years it has been quite vexatious to be watching some rather rare Narcissus, curious-flamed or feathered Crocus, or some Anemone rather shy in blooming, to come out in the morning before they opened to welcome the sun—they only fully expand under his genial influence—to find it cut across, or half the bloom eaten through, or otherwise mutilated. I am not sure that Job himself would have preserved his equanimity under the circumstances. To make matters more difficult, in so far as trying any remedy to get rid of the slug nuisance, all my beds and borders are edged with Box, chiefly on account of its tidy and trim appearance and the ease with which it can be kept so. I have tried various expedients, from dissection when they emerged from their lairs after a soft shower to tempting them with bran, Lettuce leaves, &c., fresh lime, and so on, without seeming to sensibly diminish their numbers or depredations.

This year, about a month ago, just when the first Croci and Snowdrops began to appear, I resolved to try yet another "remedy"—this time *fresh soot*. It must be remembered this word I have underlined, "*fresh*," makes all the difference. You may have soot lying aside in a damp place for some time; spread that over your border and the slugs will be gaily parading over it at your next visit. Every time you require to apply a dose—and so far I have had only to do so the once—get it direct for the purpose from the chimney or some convenient accessible flue. If got in this thoroughly dry pungent state it will kill and effectually banish all insect and creeping enemies of your flower blooms it comes in contact with; for it must be remembered those depredators will never feed on the foliage so long as the flowers are within reach. If it can be applied underneath the leaves and without soiling the blooms so much the better, as they may be required for indoor decoration, but I avoided this difficulty by applying it a month ago before the blooms emerged. Although rain has fallen several

times I see no sign of them; if I did I would renew it again. It must be remembered, too, that it is in limited quantities a capital manure for bulbs, and gives the foliage a dark glossy hue.—W. J. MURPHY, Clonmel.

NARCISSUS PSEUDO-NARCISSUS MINIMUS.

DURING the past fortnight we have had this charming miniature Daffodil in flower, and it has proved so useful in the greenhouse that we intend growing more of it another season. In sheltered positions out of doors, as, for instance, at the base of rockeries or in little nooks, it is also flowering freely, and forms some pretty clumps near the Snowdrops. At Kew it is in excellent condition just now, together with several *Corbularias*, some of which have succeeded better outdoors than we have seen them before. For the cool greenhouse or frame *Narcissus minimus* appears to be well adapted, and the most effective mode of growing it is to place a number of bulbs in a pan. Ours are in pans 6 inches in



Fig. 35.—*Narcissus Pseud.-Narcissus minimus*.

diameter, about twenty bulbs each, and as nearly every one produces a flower they form showy little specimens, the flowers coming brighter and cleaner than they do in the outside borders. Moderately light sandy loam, with good drainage, suits the plant, and it needs scarcely any attention beyond affording a due supply of water while the growth is being made, and until the flowers fade.

It varies slightly in size, but the bulb and flowers shown in the illustration (fig. 35) are about the average; from weak bulbs they come smaller, and from extra strong ones in richer soil they come slightly larger, but even in its largest form it is a most diminutive plant compared with the other Daffodils of the *N. Pseudo-Narcissus* section. In height the plants vary from 3 to 4½ inches, the leaves narrow, the flowers from the tip of the corona to the base of the ovary rarely exceed 1 inch, and the corona itself is barely half an inch long, both this and the perianth divisions being of a bright yellow colour; the corona is, however, rather darker—almost orange-tinted. In regard to size of flowers there is an astonishing range of variation in *Narcissus Pseudo-Narcissus*, and similar as they are in form it would seem scarcely possible to anyone unacquainted with the facts that the giant varieties, like major and maximus, could belong to the same species as minimus. By the way, have any of your Daffodil-growing readers ever tried raising this variety from

seed, or by growing it in richer soil to test how much the flowers and general stature can be enlarged? We are trying to procure some seed this year, with the intention of experimenting in that direction.—R., Merton.

THE IXORA.

[A paper read by Mr. A. R. Cox, Elm Hall Gardens, Wavertree, before the Liverpool Horticultural Association.]

THE *Ixora* is named after an Eastern heathen god, Iswara, to which its flowers are offered. It is native of various tropical countries, while to the art of the hybridist we owe the origin of many valuable varieties. It is a stove evergreen shrub of great beauty; for brilliancy and richness of effect surpassed by none of the many occupants of our glass structures; indeed it is questionable if it could not claim the proud title of king of all stove flowering plants. Its utility, too, is great, for few plants are more constantly in flower, which are much valued in a cut state, while small or medium-sized plants are useful for decoration. Perhaps, however, the greatest merit of all in the *Ixora* is its value as an exhibition plant. No collection of stove and greenhouse plants in competition is complete without it, its colour being especially wanted; while a large healthy bush, well flowered, is bound to find favour with the judges.

PROPAGATION.

This is best effected by means of cuttings, which may be inserted at any time during the year, providing the necessary accommodation be at command. Perhaps, however, the best time to propagate is during the month of February, as the young plants will then have the whole of the growing season in which to form the basis of good healthy plants. Cuttings strike very freely in an ordinary close propagating pit, in which has been placed a layer of sawdust to the depth of 4 or 5 inches, and a command of bottom heat ranging from 65° to 90°. The selection of growths for the formation of cuttings may be a matter of opinion, but I prefer strong healthy shoots of the previous year's growth cut into short lengths with two pairs of leaves each, the bottom pair to be removed without injury to the eyes at their axils, which in due time may push their way through the soil in the form of "suckers," and prove serviceable in the formation of the plant. The cuttings should be made firm in the sawdust, and watered through a fine rose with water heated to 90°. Probably in from three to six weeks, according to the amount of heat to which they have been subjected, the cuttings will be well rooted and ready for removal to their first pot, the size of which should not exceed 3½ inches.

The pots should be washed thoroughly clean and the drainage done in a systematic manner. This operation I consider of the greatest importance, as the *Ixora*, being a water-loving plant, especially in the more active stages of its growth, provision must be made to prevent any stagnation, which would obviously prove fatal to its well-being. I fear cultivators, as a rule, do not attach sufficient importance to the drainage of pots, it too often being left to an inexperienced youth without giving the necessary particulars. The best drainage is potsherds, which also should be washed thoroughly clean, and, together with the pots, allowed to become quite dry before being used. Commence by selecting a rounded piece of crock and placing it bridge-like over the hole of the pot; secure this in its place by putting other pieces sufficiently large to closely fill the intervening space. Over this place a layer considerably smaller, and again another smaller still; finally, a layer of charcoal, free from dust, but small enough to fill in every crevice, so that a particle of soil cannot penetrate and thus cause stagnation. This careful system of drainage holds good in all cases, but more especially is it to be urged in the case of large pots for the reception of specimen plants which may have to remain undisturbed for several years. The depth of drainage must, of course, be regulated according to the size of pot; those 16 inches diameter should not receive less than 4½ inches, and the smaller sizes in proportion.

SOIL.

The next consideration is the nature of the soil best suited for the requirements of the plants. I have known some growers use all loam, others peat and loam in equal parts, and in the last-named compost I have seen the plants thrive fairly well; but from close observation I am strongly convinced the best soil for *Ixoras* is good fibry peat freely intermixed with nodules of charcoal and clean coarse silver sand, nothing further being needed. This should be well incorporated, and heated to the same degree as the house in which the plants are growing previous to use. The soil to be used for the rooted cuttings may be passed through a moderately fine sieve, and the charcoal broken very small. In the succeeding pottings the use of the riddle should be dispensed with, and the peat broken with the hand into pieces varying in size from that of

a small nut for a 6-inch pot, to the size of an egg for those 16 inches diameter, all particles of small soil to be avoided for use in pots over 7 inches.

Previous to shifting the plants a layer of peat fibre should be placed over the drainage, half fill the small pots with soil; they will then be ready for the reception of the young plants, the remaining space to be filled to within a quarter of an inch of the top, not pressing the soil too firmly. Great care must be exercised in this operation, otherwise the very tender young roots will be injured. Water the young plants with tepid water through a fine rose, and return them to the propagating pit, which may be kept closed until the roots have taken possession of the soil, after which they should be gradually exposed to a more light and airy atmosphere, eventually removing them to a shelf or other favourable position in the plant stove, or other house, where the heat and atmospheric conditions are suited to their growth. Some writers and cultivators of this plant strongly advocate plunging the pots in tan, leaves, or other material where bottom heat is obtainable. This may have its advantages, but I have had no experience of this system, indeed all gardeners do not possess the convenience; and for the encouragement of those who are not, I may state the most successful results may be obtained without it. For specimens intended for exhibition this practice should not be adopted, as the check to the roots, on being exposed, would be so great as to cause serious injury. As the young plants progress in growth and the roots reach the side of the pots, they must from time to time be shifted on into those two sizes larger, pressing the soil carefully and firmly around the balls, taking particular care to leave plenty of room on the top to hold copious supplies of water. Amateurs, and many gardeners too, have a habit of filling their pots too full of soil, in which case water has to be applied many times to penetrate every particle of soil in the pot. The size of pot for the final shift may be determined according to the requirements of the cultivator; those, however, from 16 to 18 inches in diameter will give ample root space for the largest specimens.

STOPPING AND PRUNING.

When the young plants are established in the 6-inch pots, and the growth has made satisfactory progress, they must be stopped to induce the formation of more "breaks," by which the foundation of the plant must become established. This operation may have to be repeated after the young growths have perfected another pair of leaves, the object being to secure six shoots of equal strength as near the base as possible. These should be staked out and encouraged to grow strongly until they have attained a length of 12 inches, when the tops should be pinched out and the growths brought down to an almost horizontal position. This will cause numerous "breaks" to push from the base and other parts of the plant; indeed, from this point all stopping of growths with the object of building up specimen plants may be dispensed with. It has often been a matter of surprise to me why the orthodox practice of constantly "pinching" young plants should be so persistently followed. I am quite convinced the quickest, if not the best way, of growing a plant for exhibition, is by letting Nature have more of her freedom. Why remove that which it is the object to obtain? I have repeatedly noticed, after a plant has been stiffly trained for exhibition, how checking the sap to the outer parts of the branches causes vigorous shoots to push from the inner, and consequently more ripened portions of the plant; thus, not only are the extreme portions of the shoots preserved, but the strong young laterals added, which causes that density of bush, without which a good even mass of bloom cannot be obtained.

The question will naturally be asked, "Surely this system of extension cannot be always followed?" No; certainly not; neither is it desirable, because when the plants have attained the dimensions suited to the wants of the cultivator, be they comparatively small, or medium-sized plants in 8 or 10-inch pots for decoration, or for furnishing cut flowers, or large specimens for exhibition, an annual pruning or shortening of the branches becomes absolutely necessary, not only to keep them within a given space, but to create that strength of growth which is so essential to the production of large trusses of flowers. This operation may best be done according to the time the plants are required to bloom; for those intended for decoration only it is immaterial, but for exhibition the case is different. If they are required for early summer shows prune during the month of September; if for late summer and autumn, January and February will be found sufficiently early. Always prune to a healthy-looking joint, from which two good growths are pretty sure to proceed. It may here be mentioned that immediately after the plants have commenced growth, and providing they have been in the same pots from two to three years, a repotting may be found necessary. Turn the plants out of their pots, and with a pointed stick remove about half the old soil. This must be done

with extreme care, otherwise the crisp tender roots will be injured. They should be returned to the same sized pots, or larger if thought desirable.

(To be continued.)

CULTURE OF THE FANCY PELARGONIUM.

FANCY Pelargoniums must not be confounded with the Show Pelargoniums, which have larger flowers and are stronger in growth than Fancy varieties. These are more profuse in blooming, the flowers smaller, but very neat and pretty. They are also more tender in growth than the large-flowering, and require a lighter soil. Small plants are very effective and are grown from cuttings, but when large specimens are required they are generally grafted on a strong-growing Show variety. Grafting should be performed after the plants have finished flowering. The plants selected for the stock must be what is termed a half-specimen, which has been tied down so as to form a good framework. The shoots must be pruned after flowering to well-ripened wood, and the grafts, which must be well ripened, should be placed equally over the plant, so as to form a symmetrical head. The stock and scion must be tied neatly and closely together with soft matting and covered with damp moss. The plants should be placed behind a north wall or in a shaded pit until united. I have seen beautiful plants formed the following season after the operation.

The culture of the Fancy Pelargonium differs from that of the Show varieties in the former not being pruned hard back after flowering to such an extent. The shoots should be thinned out to prevent crowding, and partially cut back. Propagation may be carried out at any time from May until the plants have finished flowering. Before blooming there are often two or three or more short-jointed cuttings 2 or 3 inches in length about the base of the plant, which may be removed without detriment. These should be inserted singly in thumb pots, the compost consisting of equal parts of leaf soil, loam, and sand. Insert the cuttings singly in thumb pots and give a good watering, and place them in a close greenhouse or pit, when if kept carefully watered and shaded from bright sun they will soon form roots. These small plants must be placed close to the glass, and if possible be stood on a cool base. After the cuttings have grown an inch or so the points will probably require to be taken out so as to make the plants bushy. One more stopping after this will probably be sufficient so as to form a bushy plant.

After the cuttings are fairly rooted transfer them to 3-inch pots, the soil consisting of two parts turfy loam, and one part each of peat, leaf soil, and well pulverised horse manure, with a good sprinkling of sharp silver, river, or sea sand. The best position will be in a well-ventilated light plant pit close to the glass. When the plants become fairly rooted in these pots repot into 5-inch, or what is termed 48's. Pot firmly, water carefully, and fumigate occasionally to kill green fly. As the winter draws near be more sparing with the water; the best position during the winter is a light, low, span-roofed house, or a shelf in a large house. From the beginning of November until the first week in February very little water will be required, just sufficient to keep the plants from suffering. By the middle of February water more freely, and after this time the soil must not be allowed to become dry. When the bloom buds appear weak liquid manure should be applied at every alternate watering. If the above directions are carried out good healthy plants will be the result. The following are good varieties:—Atlantic, Silver Cloud, Miss Emily Little, Countess of Dudley, Pink of Perfection, Fanny Gair, Duchess of Edinburgh, Roi des Fantaisies, Princess of Teck, Bridesmaid, Lord of the Isles, and Mrs. Alfred Wigan.—A. YOUNG.

GLAZED WALL COVERS.

WE take the illustration, fig. 36, from the copiously illustrated catalogue of Messrs. Messenger & Co. of Loughborough as representative of a protector for fruit trees on walls that would be of great service in many gardens. This kind of glazed cover combines a "house" with a tree protector; as its width of 6 feet at the base and 4 feet at the junction of the upright sashes with the broad coping affords space for a narrow path next the wall, and for dwarf fruit trees in pots on the opposite side. We have seen much-prized crops of Strawberries in pots in enclosures of this kind before the open air crops were ripe; also a profusion of Roses when they were particularly acceptable. In the summer we have further seen bountiful crops of Tomatoes grown at intervals along the front without the slightest prejudice to the trees on the wall in the autumn. Such wide cases are useful in the autumn for Chrysanthemums; and in winter for Christmas Roses, the latter always being welcome for home decoration, and grown extensively and

well for sale are profitable. In fact, the cost of these glazed wall covers can soon be recouped, by good management, in the value of the produce that may be raised with their sheltering aid.

ROYAL HORTICULTURAL SOCIETY.

MARCH 8TH.

CAMELLIAS from Waltham Cross, Daffodils from several firms, and Orchids from amateurs, constituted the attraction at this meeting, and the exhibits being arranged in the Conservatory were seen to much better advantage than on the previous occasion.

FRUIT COMMITTEE—Present: T. Francis Rivers, Esq., in the chair, and Messrs. Wm. Paul, W. Warren, T. J. Saltmarsh, J. Woodbridge, G. T. Miles, S. Ford, J. Roberts, A. H. Pearson, W. Denning, T. B. Haywood, J. Fitt, J. Smith, R. D. Blackmore, and P. Crowley. Mr. G. Ford, Leonardslee, was awarded a bronze Banksian medal for nine dishes of Apples, remarkably fresh and handsome samples. The varieties were Flower of Kent, large and fine colour; Hoary Morning, rich colour; Adam's Pearmain, Blenheim Pippin, Cockle Pippin, Dr. Hogg, Golden Russet, Barcelona Pearmain, and Sussex Bosom Apple. Messrs. T. Rivers & Son, Sawbridgeworth, sent several dishes of Apples, Wagner, Mannington Pearmain, Lord Burghley, Claygate Pearmain, Bailey's Sweet, Buckingham, Duke of Devonshire, Baxter's Pearmain, Boston Russet, Duke of Devonshire, and Allen's Everlasting being well kept. Mr. W. Roupell, Harvey Lodge, Roupell Park, was awarded a vote of thanks for well-kept samples of Melon Apples from trees

Mr. Bickerstaffe), exhibited a plant of *Phaius tuberculatus* var. *superbus*, the most beautiful example of this fine Orchid we have yet seen. The flowers were larger than usual, the sepals and petals pure white, the lip very broad, mottled with reddish brown on a yellow ground on the side lobes, purplish in the centre and margin, which is undulated, and has an orange coloured crest with a white irregular band between it and the margin. A cultural commendation was awarded. From the same garden came a fine variety of *Anthurium carneum*, with bright rosy red spathes, 6 inches long and as much in diameter. The Hon. and Rev. J. T. Boscawen, Lamorran, Cornwall, showed a well flowered plant of *Dendrobium nobile*, nearly 3 feet in diameter. De B. Crawshay, Esq., Rosefield, Sevenoaks (gardener, Mr. Cooke), exhibited a little group of *Odontoglossums*, chiefly O. Rossi varieties, O. Alexandrae, O. hebraicum, and O. Wilckeanum. A plant of *Cattleya Trianae* and *Masdevallia Shuttleworthi*, var. *xanthocorys*, were also included. W. Vanner, Esq., Camden Wood, Chislehurst (gardener, Mr. Robins), sent flowers of *Cattleya Trianae* Vanneriana, which has a yellow stripe down each of the sepals. S. Courtauld, Esq., Bocking Place, Braintree (gardener, Mr. Wright), sent a fine plant of *Cattleya Trianae* Courtauldi, with numerous flowers, the lips very richly coloured, also a fine panicle of *Phalaenopsis Schilleriana*.

Henry Little, Esq., The Barons, Twickenham (gardener, Mr. Hill), had a group of over fifty plants of *Lycaste Skinneri*, bearing four to six flowers each, and comprising some particularly handsome varieties. Especially noteworthy were Model, with beautifully formed flowers, pale pink sepals, white petals and lip; picturata, distinctly marked; gloriosa, large and well-formed; marmorata, pink and white and marbled crimson in the petals; and magnifica, large and white lip, blue colour. A cultural commendation was awarded.

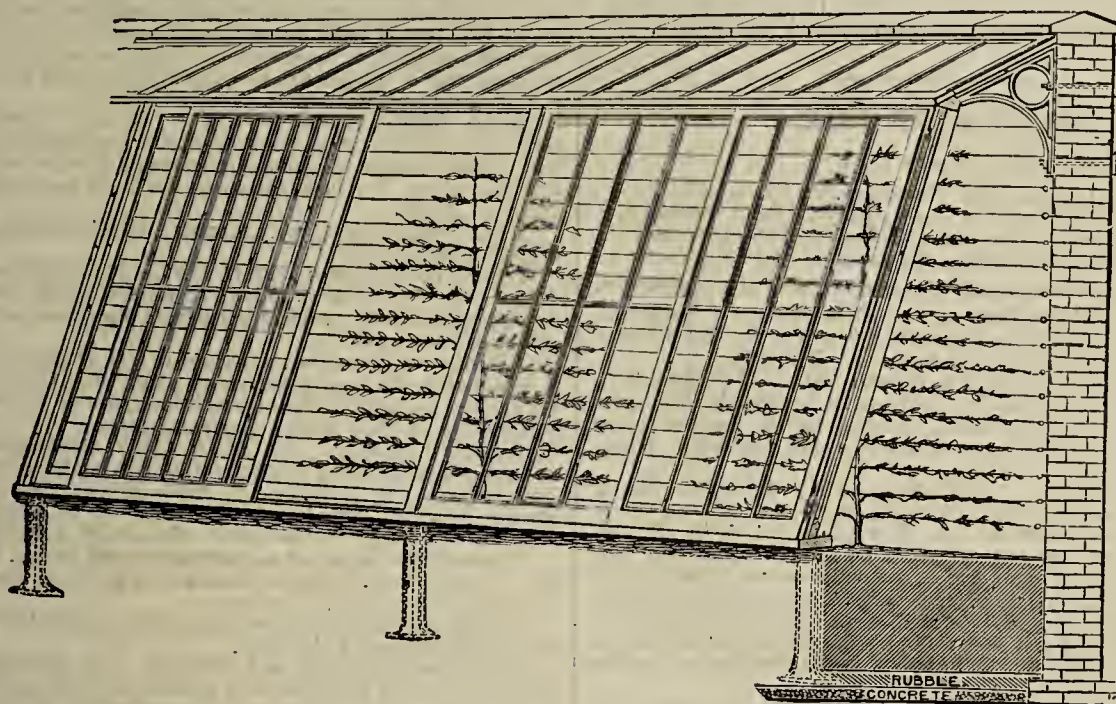


Fig. 36.—GLAZED WALL COVER.

grown out of doors. The variety is strongly recommended by Mr. Roupell for cultivation in the neighbourhood of towns. Messrs. Saltmarsh & Sons, Chelmsford, showed fruits of a seedling Apple named Lord of the Manor, a conical yellow Apple with numerous russet dots. The Committee requested to see it again next year. Mr. Roberts, Charleville Forest, sent samples of white Gros Colman Grape, apparently the same bunches as those shown before, but they were in such bad condition that the Committee could express no opinion concerning them. Mr. B. Looker, Kingston-on-Thames, showed samples of the Patent Simplex Orchid Pot, in which the base is moveable, and Messrs. Spear & Jackson, Cannon Street, sent samples of horticultural tools. Messrs. J. Green & Nephew, 107, Queen Victoria Street, were awarded a vote of thanks for a sample of elegant flower vases and glasses.

FLORAL COMMITTEE.—Present—G. F. Wilson, Esq., in the chair, and Messrs. W. Wilks, J. Douglas, J. Walker, H. Bennett, H. Herbst, G. Duffield, W. B. Lowe, J. Hudson, W. Holmes, B. Wynne, R. Dean, D. Noble, T. Baines, O. Pilcher, J. Dominy, H. Ballantine, H. M. Pollett, A. J. Lendy, J. O'Brien, G. Hill, H. Turner, W. Goldring, Shirley Hibberd, G. Paul, and Dr. M. T. Masters.

Messrs. William Paul & Son, Waltham Cross, had a remarkably handsome display of Camellias. About twenty specimens were in pots, healthy pyramidal plants, well clothed with foliage and flowers, a dozen boxes of cut blooms being shown in addition. Some of the best varieties were C. M. Hovey, bright red; Marchioness of Exeter, very large, rosy salmon, Nina Egeria, Candidissima, and Alba plena, white; Bealei, deep red; Comte d'Hainault, delicate pink; Rafia, bright red striped white; Princess Clothilde, white, streaked red; Il Commendatore Betti, soft salmon red, very fine; L'Avenir, beautiful shape, rose with a few white streaks; Princess Charlotte, white; Andrea Dorea, small but neat, and extremely bright red; Cup of Beauty, white, with a tinge of pink, very beautiful; and Mathotiana, large, good shape, and of a fine dark red colour. A silver-gilt medal was awarded for the collection.

Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking (gardener,

Mr. Little also had a plant of *Odontoglossum Littleanum*, with a long raceme of flowers, yellow, spotted and blotched with brown, and *Cattleya Trianae* on a raft, a showy variety, and bearing over two dozen flowers. Mr. J. Fitt, Cassiobury, Watford, showed a plant of *Dendrobium nobile* in a basket, about twenty growths being loaded with flowers. A cultural commendation was awarded. He also had an *Amaryllis* named Lord Esher, very bright scarlet. B. D. Knox, Esq., Caversham, Reading (gardener, Mr. Laurence), had plants of *Lælia anceps*, *Cattleya Trianae*, and *Odontoglossum Alexandrae*. A vote of thanks was accorded.

Besides the plants certificated, Messrs. Veitch & Sons, Chelsea, had a pretty Fern, *Lomaria gibba platyptera*, a garden form, with handsome pinnate fronds, the pinnæ regularly undulated, and *Amaryllis Iona*, white, with red streaks. Mr. Duncan Gilmour, jun., Snefield, had a box of the Tea Rose, The Bride, of a soft sulphur tint, the blooms of excellent shape, very neat, especially in the bud state, and fragrant. A pan of *Saxifraga Burseriana* was sent from the Society's Garden, neat tufts being studded with its white flowers. A vote of thanks was accorded to Mr. F. W. Moore, Curator, Glasneven Botanic Gardens, for a collection of *Lachenalias*, comprising aurea, Nelsoni, tricolor, and orchoides. Messrs. Pope & Sons, Birmingham, had a group of *Primulas* comprising four good new varieties, Victoria, blush; The King, crimson; Kingshorton Gem, purple; and Lady R. Churchill, pale blush, nearly white; all are single varieties, and a vote of thanks was accorded for them. Mr. F. Ross, Pendell Court Gardens, Bletchingley, was awarded a vote of thanks for flowers of *Thunbergia* Harrisii, a species with pale violet or mauve-coloured flowers, and *Acacia verticillata*. Messrs. Paul & Son, Cheshunt, had a pretty group of hardy bulbous plants, *Bulbocodium vernum* being very pretty, *Iris reticulata*, *Krelagei*, *Cyclamens Coum* and *ibericum*, *Corbularia alba*. Flowering specimens of the purple leaved *Prunus Pissardi* were shown by Messrs. Paul & Son, Cheshunt, and were much admired, the graceful white flowers having a purplish centre and reddish peduncles. It flowers freely and was shown to prove its value for forcing. *Leucojum vernum*, *Saxifraga Burseriana*, and *Scilla siberica*, with plants of the new yellow hardy *Saxifraga*, S. Frederici

Augusta were also shown (vote of thanks). Mr. J. James, Farnham Royal, had a box of handsome richly coloured Cineraria blooms. Mr. W. Gordon, Twickenham, was awarded a vote of thanks for a Camollia named Lady Clancarty, something like a double white *C. Sasanqua*.

Mr. T. S. Ware, Tottenham, was adjudged a silver medal for a large and choice collection of Daffodils with other flowers, such as *Anemone fulgens*, *Lachenalia*, *Freesia refracta alba*, the neat white *Album neapolitanum*, and *Iris reticulata* varieties, with *Scillas*, *Orchis longibracteata* and *papilionacea*. Messrs. H. Page & Sons, Teddington, were awarded bronze Banksian medal for a group of well grown *Cyclamens* and a basket of *Odontoglossums*. Messrs. Barr & Son, Covent Garden, W.C., were awarded a bronze Banksian medal for a choice selection of Daffodils, *Iris reticulata*, *Snowdrops*, and *Anemone fulgens*. Messrs. Collins Bros. & Gabriel, 39, Waterloo Road, contributed a beautiful collection of Daffodils, *Anemones*, *Chionodoxas*, and *Iris reticulata* varieties, tastefully arranged in neat glasses. A silver Banksian medal was awarded.

CERTIFICATED PLANTS.

Rhododendron La Belle (J. Veitch & Sons).—A hybrid between *R. ciliatum* and *R. Forsterianum*, and representing a distinct type. The plant is of sturdy compact habit, the leaves elliptical, $1\frac{1}{2}$ inch long and 1 inch broad. The flowers are bell-shaped, pure white, 3 inches in diameter, and borne in heads of seven or eight, and are very fragrant.

Amaryllis Nestor (J. Veitch & Sons).—A strong variety with two heads of four flowers each, deep crimson tipped with greenish white.

Tea Rose—The Bride (Mr. D. Gilmour, junr.).—The blooms shown of this variety were much the best yet seen in public, and the first-class certificate awarded was well merited. The blooms were beautifully formed, of moderate size, of a soft sulphury tint, and fragrant. We gave an illustration of this Rose, October 14th, 1886, p. 343, when it was stated that it originated with Mr. John May, Summit, New Jersey, and was a sport from Catherine Mermet.

NEW PLANTS OF 1886.

(Continued from page 176.)

Inf., Inflorescence.—*L.*, Leaves.—*Fl.*, Flowers.—*Fr.*, Fruit.—*H.*, Hardy.—*H.H.*, Half hardy.—*G.*, Greenhouse.—*S.*, Stove.—*Per.*, Perennial.—*Shr.*, Shrub.—*Ln.*, Inches.—*Lin.*, Line = One-twelfth of an inch.—*Ft.*, Foot or Feet.—*Diam.*, Diameter.—*Pet.*, Petals.—*Sep.*, Sepals.

N.B.—Unless specified, all Orchids may be considered to be stove epiphytes.

IMPATIENS EPISCOPI. (Veitch Cat., p. 12) Geraniaceæ. S. perpetual flowering Balsam. This is a good variety of *I. Sultanii*, with flowers of a rich purple-carmine, shot with a brilliant rosy hue. Zanzibar.

IMPATIENS HAWKERI. (G. C. xxv., p. 760 and 761, f. 168; Bull. Cat., p. 8, and 3 with fig.) S. A magnificent Balsam, with whorls of elliptic acuminate, serrate l., and very large flat fl., of a very rich brilliant carmine, with a spur about 2 in. long. The fl. are solitary in each leaf axil. South Sea Islands.

IRIS ARENARIA, var. *MINOR*. (Gfl. 1886, p. 116.) Iridaceæ. H. A dwarf variety, with much smaller fl. than in the type.

IRIS CENGIALTI, and var. *LOPPIO*. (G. C. xxv., p. 554, 555.) H. per. Much resembling *I. pallida*, but with smaller fl. and the l. dying down in winter. L. 6-9 in. long, $\frac{1}{2}$ in. or more broad, yellowish-green. Scape about a ft. high, 3-4-flowered. Fl. like those of *I. pallida*, but smaller, sky-blue, flushed with violet. Monte Cengialto. Var. *LOPPIO*.—This differs from the type in having bluish-green l., and dark rich blue fl., with somewhat longer and narrower perianth segments. Monte Baldo. (For other forms see also G. C. xxv., p. 586.)

IRIS ROSENBACHIANA. (Gfl., t. 1227.) H. A very singular species, with small tap ring bulbous roots. From the very short stem arise 3-4 convolute sheaths, forming a false stem 4-5 in. high, from which peep out four very short ensiform l., and one fl. with a very long tube. The outer perianth segments are about an in. long, spatulate-obcordate, and very spreading; the inner segments are twice as long, oblanceolate, and erect with recurved tips; the stigmas are erect and deeply bifid. The fl. are either blue or purplish with the tips of the inner segments and stigmas blackish-violet or violet-purple, the inner segments have an elevated yellow ridge down the middle, with violet spots on each side of it. Turkestan.

IRIS STATELLÆ. (B. M., t. 6894.) H. per., allied to *I. lutescens*. L. ensiform 6-9 in. long, glaucous-green. Fl.-stem a ft. high, two-flowered at apex. Fl. pale yellowish, veined with green, and bearded with yellow on the broadly cuneate-obovate, revolute falls; the standards (inner perianth segments) are broadly oblong obtuse, overarching the bifid styles. S. Europe.

IRIS SUWOROWI. (Gfl. 1886, p. 397.) H. per. L. ensiform. Fl.-stem 2-flowered, as long as the l. Perianth segments all elliptic-lanceolate cuspidate, hyaline greenish, with olivaceous-bluish veins, the three outer ones bearded to the middle with blue. Buchara.

IXORA CONSPICUA. (Bull. Cat., p. 8.) Rubiaceæ. S. shr. A handsome form, with large turesses of buff-yellow fl. changing to bright orange.

IXORA SPECIOSA. (Bull. Cat., p. 8.) S. shr. A beautiful variety with buff fl., changing to bright orange salmon.

JASMINUM ANGULARE. (B. M., t. 6865.) Oleaceæ. G. An ornamental scrambling shr., with angular stems, trifoliate l., and terminal cymes of white fl. Calyx 4-eth short, ovate acute. Corolla tube $1\frac{1}{2}$ in. long, the limb with 5-6 spreading lanceolate lobes. S. Africa.

KEMPFERIA ATROVIRENS. (Ill. H., t. 610; Cat. C. C. d'Hort., p. 7.) Scitamineæ. S. per. herb., of dwarf tufted habit. L. slightly spreading obliquely elliptic-oblong, very dark green, 2-5 in. long, on erect petioles 4-5 in. long. F. $1\frac{1}{2}$ in. in diam., of a beautiful mauve-purple with whitish eye. Borneo.

KALANCHOE CARNEA. (G. C. xxv., p. 293.) Crassulacæ. An attractive G. glabrous succulent, with petiolate, elliptic ovate, obtuse crenate, bronzy-green l., 3-5 $\frac{1}{2}$ in. long, $1\frac{1}{2}$ -3 in. broad; and corymbose cymes of fragrant pink fl., $\frac{1}{2}$ in. in diam. With age the base of the stem forms a large bole. South Africa.

KARATAS AMAZONICA. (G. C. xxv., p. 814) Bromeliaceæ. S. per. A

fine and distinct Bromeliad, with a rosette of lanceolate l. 1-1 $\frac{1}{2}$ ft. long, 2-3 in. broad, greenish-brown on the face, glossy claret-brown on the back without markings or scales, finely serrated on the margins. Fl. in a dense sessile head in the centre of the rosette, white with a greenish tube, the bracts and inner leaves greenish-brown. Syn. *Bromelia amazonica* and *Echmea amazonica*. Amazons.

LABISIA ALATA. (Ill. H., pl. 605.) Myrsinæ. S. shr. of dwarf habit, with large lanceolate acute l., the base of the blade of the l. being continued as a broad wing down the petiole; they are of a peculiar chalky-green above, dull green beneath. The stout axillary peduncles are about 4-6 in. long, with small clusters of small whitish fl., pinkish outside. Borneo, Malacca.

LABISIA MALONIANA. (Ill. H., pl. 580; Cat. C. C. d'Hort., p. 7.) S. foliage plant, of dwarf habit, with fine lanceolate acute subsessile l. of a very dark green, marked along the midrib with a feathery band of whitish green, purplish beneath. Borneo.

LÆLIA ALBIDA, var. *BELLA*. (W. O. A., pl. 239.) Orchideæ. A charming variety, with larger fl. than the type of a milk-white colour, tinged with lilac-pink on the tips of the pet., and having the front lobe of the lip broadly bordered with rose-purple, with three yellow keels on the disk. Mexico.

LÆLIA ANCEPS, var. *KEINASTIANA*. (G. C. xxv., p. 298.) A variety with the pet. and side lobes of the lip of a fine rosy colour.

LÆLIA ANCEPS, var. *MUNDA*. (G. C. xxv., p. 298.) A variety with white side lobes to the lip, marked with purple veins, and the yellow of the lip confined to the three keels.

LÆLIA ANCEPS, var. *OBSCURA*. (G. C. xxv., p. 41.) A fine variety, with very long, narrow sep. and pet. of very dark colour, the sep. with a white area at base. Lip dark purple, with a dark orange disk.

LÆLIA BATEMANIANA. (G. C. xxvi., p. 263.) A charming and very interesting hybrid between *Sophronis grandiflora* and *Cattleya intermedia*. The 1 to 2-leaved bulb has a short peduncled Lælia-like fl., with oblong acute sep. and broader pet. of a light purple-rose; and a 3-lobed lip of rich carmine with a light mauve hue, the disk and side lobes tinged white, with a light mauve-purple border. Garden hybrid.

LÆLIA MEASURESIANA. (W. O. A., pl. 207.) A very beautiful species. Stems a ft. high, clavate, compressed, and furrowed, bearing 1-2 thick oblong emarginate l., and a corymbose raceme of 3-4 large and handsome fl. Sep. and pet. white. Lip light yellow on the front part, which is filled on the margin. Brazil.

LÆLIA PILCHERIANA, var. *LILACINA*. (G. C. xxv., p. 617.) This is merely a small flow red form.

LÆLIA PORPHYRITIS. (G. C. xxv., p. 73.) Bulbs cylindrical, furrowed, 1-2 leaved. Fl. similar to that of *L. pumila*. Sep. ligulate acute, purple, and greenish; pet. broader, light purple, lip warm purple, with a light yellowish disk. Brazil.

LASTREA DILATATA, var. *DENTIGERA*. (G. C. xxvi., p. 103.) Filices. H. A neat and pretty variety of dwarf habit, with slender lanceolate fronds 6-8 in. long; pinnules about an inch long, ovate acute, cut into 2-4 lobes, which have 1-2 short teeth. Inverness-shire.

LAYIA GLANDULOSA. (B. M., t. 6856.) Compositæ. H. A beautiful annual, glandular-hairy throughout, branching from the base. L. alternate, linear obtuse, 1-1 $\frac{1}{2}$ in. long. Fl.-heads solitary, an inch in diam., with a small yellow disk and a broad white ray, the ray florets are flat, broadly obovate, and 3 lobed at the apex. Western N. America.

LEUCOJUM ROSEUM, var. *LONGIFOLIUM*. (Gfl. 1886, p. 116.) Amaryllidaceæ. H. A pretty bulb, differing from the type in its longer l., larger fl., and more floriferous habit. Corsica.

LILIUM COLUMBIANUM, var. *LUCIDUM*. (Gfl. 1886, p. 454.) Liliaceæ. This is the same as *L. lucidum*.

LILIUM PARDALINUM, var. *WAREI*. (Gfl. 1886, p. 52.) A form with shorter and more cordate l., and smaller fl., varying from lemon to orange-yellow without the brown spots characteristic of the type. Lower California.

LIGUSTRINA PERINENSIS. (R. H. 1886, p. 393.) Oleaceæ. H. shr. or small tree, very bushy, with slender, velvety, dark red branchlets, and opposite, deciduous l., with the petiole and midrib blackish-purple. N. China.

LISSOCHILUS DILECTUS. (G. C. xxv., p. 456.) Orchidaceæ. S. terrestrial Orchid, with branched, hand-like rhizomes, broad l., and a peduncle 2-3 ft. high, bearing 4-10 large rosy fl. with a purple lip. Sep. linear-lanceolate acuminate reflexed; pet. oblong, very broad; lip three-lobed with broad side lobes, and a nearly square retuse front lobe. Congo.

LITOBROCHIA ROBUSTA. (Cat. C. C. d'Hort., p. 10.) Filices. S. An ornamental Fern, with tripartite fronds of a bright clear green, with slightly undulated pinnules.

LORANTHUS FLAVIDUS. (Gfl. 1885, p. 342.) Loranthaceæ. H. or H.H. An interesting parasite of the Mistletoe family, which may be grown by sowing the berries upon the above-ground roots of the Beech tree. A small shr., with opposite petiolate oblong l. about 1 $\frac{1}{2}$ in. long, obtuse and thick. Fl. from the previous year's growth in small racemes; perianth yellowish, $\frac{1}{2}$ inch long, with a slender tube and four narrow reflexed segments. New Zealand.

(To be continued.)



KITCHEN GARDEN.

CELERY.—Seed sown about four weeks ago has produced plants which now require more space. They will, therefore, be lifted from the

seed box and dibbled into others at a distance of 2 inches apart. These will form a very early batch of Celery, as they will be ready for use or exhibition by the beginning of August; but this is much too early for the main crop of Celery, and that which is required about October and onwards may be reared now. The first seed sown germinated in good heat, but the present sowing need not be forced rapidly, and a temperature of 60° or 65° will suit the young plants. If the seed is sown in one or two boxes it will be found that a large number of plants may be secured from a small space, and this is the way we produce thousands of plants every spring. Celery should have rich soil from the beginning to the end of its culture, and watering must never be neglected, as if the seed or young plants are allowed to become dry once it is enough to ruin them for the season. Too much heat is also objectionable, as if the young plants are forced in a very high temperature now they are apt to receive a check before the summer is here, and we invariably prefer sturdily plants to the forced ones.

POTATOES.—Admit air freely to those advancing in growth in frames. Always open the lights on the lee side, and keep them shut when the wind is keen, as the stems are exceedingly tender, and a check now would weaken the crop. Cover at night to protect from frost, and do not keep them too wet. The open-air planting of early Potatoes should now receive attention. Hitherto, what we have planted have been placed close to the bottom of a south wall for protection; but those to be planted now may safely be put in the south or east border. Only early varieties should be planted. Those of the Ashleaf type are the best. Give them moderately rich soil, keep the rows from 20 inches to 2 feet apart, with 1 foot between the sets, and put them 4 inches below the surface. Heavy soil is unsuitable for early Potatoes. We use plenty of leaf soil with our early Potatoes, as they turn out of it so clean. Spread out the second early tubers in a light airy place to sprout, and see that all the seed Potatoes are subjected to treatment which will induce them to produce short robust sprouts before planting. It is a great mistake to allow them to form sprouts several inches in length, as these will be broken in planting, and the second growths are never so good as the first ones.

SPRING CABBAGES.—We have had these earlier than they are at present. They were planted at the usual time last autumn. Deaths have been few but growth slow, and they will not be ready by Easter unless the weather improves rapidly; but they are a useful crop, and everything should be done to induce them to form heads as soon as possible. Make up the blanks, shake a little soot, guano, or nitrate of soda round each plant, and then earth them up. Another plantation may be formed from the plants which have been in the seed bed all the winter. Give them rich soil. This is about the time that Cabbage plants are offered for sale in the markets, and in buying them it is an advantage to get them planted as soon as possible. As a rule they are very dry at the root, and appear as if it would not matter whether they were planted to-day, to-morrow, or next day, but the longer they are kept out of the soil the later will they be starting or becoming established plants.

STORED ROOTS.—Now that we are looking forward to new crops we are liable to neglect the old ones, but it will be a considerable time before young roots are plentiful, and the old ones are still capable of doing good service. Pick out all the Onions that are sprouting and throw them away. Keep the firm bulbs in a cool place. Turn Carrots, remove decayed ones, rub the growths from the crowns of the sound roots, and store in sand or ashes. Turnips should be examined in the same way. All Parsnips and Salsafy should be lifted and stored. Keep all roots cool but not too dry, as they may shrivel. We do not object to store roots under a tree at this season, and cover them with leaf soil.

AUTUMN-SOWN ONIONS.—Transplanting these should be completed. They may be more successfully dealt with now than earlier. A very rich soil and sunny position will invariably produce good bulbs. The rows may be kept 15 inches apart, with 6 inches from plant to plant, and after dibbling them in they should be trodden all round with the feet. We approve of firm soil for Onions above everything.

LEeks.—Keep young plants in pots or boxes near the glass, in a temperature from 60° to 70°, and well supplied with water. Sow a good batch of seed in the open ground; so long as the soil is rich they are sure to grow, and they may either be sown in rows or broadcast. Should the ground on which the old Leeks are now growing be required for other crops, dig them up and place them in by the heels in any odd corner. Only Leeks for exhibition should be raised under glass. Open air rearing suits all main crop plants admirably.

RADISHES.—Thin out the young plants in frames before they injure each other by crowding. Radish seed may be sown in the open ground at once, and the roots from this sowing, which will be ready for use before April is over, will be very acceptable where salad has been scarce during the winter.

TURNIPS.—These can never be ready too early, as the old roots often fail to keep until the new ones are grown, and a scarcity never pleases the cook. We have tried to get the young shoots ready in March or early in April by sowing in January or February, but success did not attend our practice, as from the earliest sowings we hardly had any plants, and the February ones bolted before bulbing. Now we do not sow until the second week in March, and we always secure useful little bulbs from our first sowing. The Early Milan is the best variety to sow as a first crop. It bulbs a fortnight earlier than any other variety

we have tried. Good soil and a sunny position should be given the first crop. Sow the seed thinly in drills 15 inches apart and 1½ inch deep. Cover over carefully, and look out that the birds do not draw a quantity of the young plants up. If they attempt this dust with soot or lime.

SPINACH.—There are few vegetables more useful in the hands of a good cook than Spinach. The autumn sowings have been injured by the winter frosts, and they will not prove profitable crops this spring. Indeed, we have dug our winter Spinach down and sown seed of the round variety for a spring crop. It may be sown in quantity now, and as it grows fast the leaves will be ready for gathering in four or five weeks. Sow in drills 1 foot apart and 2 inches deep, and let the soil be rich and in good order, as the leaves are not worth gathering from poor soil. Many sow Spinach as an odd crop between fruit bushes, but the early crop must have a good position, as quick returns should be the aim of all at this season. Fork over and break up a piece of soil on a south border or other early position, and sow a pinch of seed of the following vegetables;—Lettuce, Cabbage, Brussels Sprouts, and Cauliflower. Parsley may also be sown, but not as a main crop yet.

FRUIT FORCING.

VINES.—*Early Houses.*—Early Vines in many places have not made satisfactory progress this year, especially those with the roots in cold borders which have not been covered with fermenting material. The Vines have started very slowly and the bunches show a tendency to blindness, some of them running off to tendrils and others not advancing freely. Under such circumstances a slight increase of temperature and a reduced supply of moisture for a short time may be beneficial. Thinning should be kept well in hand, commencing as soon as the berries likely to swell freely can be detected, and as a rule thin out well in the interior of the bunches, leaving the berries with room to attain their full size without wedging, and yet so full as not to fall out of shape when placed on a dish. Liquid manure applied to inside borders will materially assist the swelling of the Grapes after having been thinned, applying it at a temperature of 80° to 85°; and a liberal supply of moisture charged with ammonia, whether it be had by occasionally sprinkling with liquid guano or mulching the border with fresh stable litter with the straw shaken out, will be beneficial. Bright sunny days with sharp winds may now be expected. Avoid sudden changes of temperature, and admit air in small quantities at a time, closing early in the afternoon at 85°, allowing the house to fall to 65° at night. Grapes that have passed the stoning process should have copious supplies of warm liquid manure. Avoid the close stopping system until every part of the trellis is well covered with foliage, as every leaf promotes root action, which it is necessary to maintain as active as possible, so as to secure well-swelled berries.

Succession Houses.—Disbud and secure the growths as they advance, stopping them two joints beyond the bunch where the space is limited, but where there is space allow a greater extension of the shoots before stopping. Remove the laterals from the joints below the show of fruit, except from the two base leaves, which stop at the first leaf, and to one afterwards as produced. The laterals above the fruit may be allowed to make such growth as can have exposure to light without crowding, and then be stopped, keeping closely pinched afterwards, as well as in the case of those not having room for extension. Remove all superfluous and ill-formed bunches of the free-setting varieties as soon as those that are most promising for the crop can be determined. Vines started early in the year will be in flower; a rather dry atmosphere with a free circulation of air and a temperature of 65° to 70° at night and 70° to 75° by day are conducive to a good set, moderate moisture being maintained by damping the house two or three times a day in bright weather; any shy setting varieties, such as Muscats, should be kept 5° higher, the flowers being carefully fertilised.

Late Houses.—Start the houses intended to afford fruit in August onward; indeed, Muscats, Alicantes, Lady Downe's, and other late sorts should be encouraged to move now, as the fruit keeps much better when ripened in August or early in September, than when the season is more advanced at the ripening period. Vines, however, which have only been recently pruned, should not be started for some time yet. In the case of late Hamburgs, the Vines may be kept cool and not started until next month. In the case of inside borders, they can be brought into a thoroughly moist state by the application of water at a temperature of about 80°. It will in some degree stimulate the roots and compensate for the lack of fermenting materials, which can do little good after this; indeed, no advantage accrues to the roots from an application of fermenting material to outside borders when artificial heat is not applied before March. The atmosphere should be kept moist by damping the rods and every available surface two or three times a day, 50° being a sufficiently high night temperature, and 65° by day with sun.

Fruiting Vines in pots must sustain no check through dryness at the roots or want of food, affording liquid manure liberally, surfacing the pot with rich material, and if the roots extend beyond the pots feed them there as well as in the pots.

Vine eyes inserted as before advised will now be rooted, and should, as soon as the roots reach the sides of the pots, be shifted into 6-inch pots, placing them on shelves over the hot-water pipes in preference to plunging them in bottom heat. Syringe well amongst them and pinch the laterals at the first leaf, unless they are intended to be planted out this season, when the laterals should be left entire.

Vines cut back for fruiting in pots next season will now be fit for shaking out, repotting, or shifting into 12-inch pots. If these, or the

eyes previously referred to, have been plunged in bottom heat they should be returned to it for a time, 75° to 80°, but otherwise bottom heat is not necessary. Keep them close and moderately moist until they are established. Train the canes near the glass, as they cannot have too much light, it being important that the growth be solidified as it is made. Turfy loam rather rough with a fifteenth part of half-inch bones form a suitable compost for Vines in pots. Clean pots and efficient drainage of clean crocks should always be employed in Vine culture.

PEACHES AND NECTARINES.—*Earliest Forced House.*—With the fruit stoning the temperature must be kept as equable as possible. Too high a night temperature is not favourable to the fruit, and cold draughts in the daytime are even more pernicious. The temperature should be continued at 60° to 65° at night, and 70° to 75° during the day. Thinning the fruit must be seen to betimes, it not being advisable to leave during the stoning period more than twice the number of fruit that are to be left for a crop. One fruit to a square foot of trellis covered by the trees is ample. Nectarines are often left much closer, which proportionately lessens their size, whereas to secure fine fruit they require the same space as Peaches. See that all the shoots are tied to the wires as they progress, stopping any shoots except extensions when they have made 12 to 15 inches of growth. If the pinching results in laterals stop them at the first leaf. Shoots retained to attract the sap to the fruit should be stopped to one leaf, they having previously had the first growth at the second or third leaf. Avoid overcrowding, syringe morning and afternoon to keep red spider under, but if the pest obtain a footing dislodge it by syringing with some approved insecticide or a solution of softsoap, 2 ozs. to the gallon of water. In the case of trees with the run of outside borders they will still need protection, and the inside must be duly supplied with liquid manure in a tepid state.

Second Early House.—Disbudding and tying-in must be proceeded with, the disbudding requiring to be done gradually. Some kinds have twin fruit, notably Noblesse and Grosse Mignonne. Remove all such. The blossoms in most instances have set very thickly this year so far, and upon a shoot of 9 to 12 inches in length are a dozen or more fruit, which should be thinned so soon as the blossoms are east, removing the smallest fruit, that on the under side of the branches and the badly placed, leaving three to five on a branch of the length named, which are reduced to two or three when of the size of marbles, and afterwards to one, though two may remain if there be a deficiency in other parts of the tree. When the fruit is of the size of Walnuts increase the temperature to 55° to 60° at night, 60° to 65° by day from fire heat, and 75° from sun heat. If brown aphides appear fumigate on two consecutive nights, being careful to have the foliage dry, or the leaves will be blistered.

Late Houses.—Houses that have the lights off have the trees in no more than a swelled bud state, but houses with fixed lights have the trees with the buds expanding or expanded. In the first case the lights need not be put on until the middle of the month, but the latter will need to have syringing discontinued when the blossoms are fully expanded, or before, but the floors, &c., damped morning and afternoon, leaving a little air on constantly at the top of the house, employing as little fire heat as possible, but after the stamens appear a certain amount of warmth is needed, as we find that when the flowering extends over a considerable time that the blossoms do not set well; therefore, after the blossoms open maintain an artificial temperature of 55°, 40° to 45° at night in severe weather, 50° to 55° by day artificially, with a free circulation of air, advancing to 65° with sun. In the case of weak trees having a superabundance of blossom it will be advisable to remove those flowers from the under side or back of the shoots; as the trees may be against front or back trellises. Keep the borders in a thoroughly moist state.

PLANT HOUSES.

Clerodendron Balfourianum.—Plants that were grown from cuttings last season should by this date have had a good period of rest. Four or five stakes about 1 foot high may be placed round the sides of the 6 or 7-inch pots in which they were grown, leaving the stakes slightly wider at the top than the base. Round these the plants may be trained, and when they come into bloom they will be shapely specimens suitable for the side stages of the conservatory or any other structure. They should be flowered in the same pots in which they were grown, the surface soil being removed, and equal parts of loam and manure supplied. These will soon break into growth in a temperature of 65°. Soak them with tepid water and syringe twice daily. Directly they start into growth give an application of Standen's or Clay's fertiliser, which may be repeated at intervals of about a fortnight. Do not keep plants intended for successional purposes in too low a temperature. They will be safe in a temperature of 55°. When they have been flowered convey them to the rubbish heap, for it is much better to grow plants annually from cuttings than to retain them a second year. Good cuttings from the earliest started plants will now be plentiful, and if taken with a sharp knife where they issue from the old wood will root quickly in sandy soil in the propagating frame or under a bellglass where the temperature ranges about 65°. Sow a little seed of *C. fallax*, and introduce a few of last year's plants that have been rested in heat. Insert cuttings singly in 3-inch pots of *C. fragrans*. To flower this variety freely and quickly the plants must be restricted at their roots, therefore grow them close to the glass, but do not repot them.

Panicum variegatum.—A good number of cuttings should now be rooted for various decorative purposes. For grouping plants in 3-inch

pots are most suitable, but for hanging round the side stages of the stove a number may be placed together in 5-inch pots. In this size they will develop to a large size and reach the ground by midsummer. The cuttings will strike freely and quickly in a close frame in brisk heat.

Selaginella caesia.—For association with the *Panicum* few plants are more beautiful. The general stock may now be introduced into brisk heat, where they will quickly start into growth. When they have grown a few inches high they may be divided and potted. Whatever size pot the *Panicum* may be grown in the same should be used for this plant, or even a size larger. They will do well in loam and one-third leaf mould with plenty of coarse sand added, or fine peat may be used in the place of the leaf mould.

Gloxinias.—Those started some time ago in pans and boxes amongst leaf mould may now be potted singly. The pots to be used for these plants depends entirely upon the size of the tubers. If stage room is limited and the flowers are required principally for cutting, place them in pans through which three holes have been bored so that they can be suspended from the roof. It is surprising how well they do in this way in a warm moist structure. Care must be taken not to wet their foliage when syringing. Other tubers may be started in the same way as previously advised.

Tydeas.—Many of the plants of such kinds as Madame Heine will be going out of flower. Insert the cuttings in sandy soil in pans, so that the whole of the old plants may be thrown away. They will strike quickly in the propagating box. If cuttings are scarce cut back a number of plants; and in a few weeks they will be plentiful. Cuttings rooted now will be too early for flowering at this period another year, but when inserted thickly together in pans they do not take up so much room as a number of old plants standing about. These plants can be topped again in June and then grown on for flowering, while those in the pans can be thrown away.

Coleuses.—Where many of these are required for conservatory decoration in the best of condition as early as possible, they should be struck without delay. Insert the cuttings singly in small pots, and place them on a shelf in a warm house.

Gentropogon Lucianus.—Those that flowered early in the stove will now have produced good cuttings from last year's shoots where the plants were not cut close back after flowering. Take the cuttings with a heel and insert in sand. Give a good watering, and place the pots on a shelf close to the glass, but shade from the sun, and they will root much better than in the propagating box. The last position is too close and confined for them, and they are very liable to damp, which will not be the case on a shelf. Cuttings of *Linum trigynum* will now be plentiful. These will root with certainty in the propagating frame, and as soon as sufficient are rooted throw away the old plants.

Poinsettias.—Those that flowered early in the stove, and have since been resting, may now be introduced into heat. Soak the soil with tepid water and syringe freely, and they will soon break into growth and produce cuttings.

Amaryllises.—Plants raised from seed sown about August and wintered in pans may now be potted singly into 2-inch pots in light fertile soil. Grow these close to the glass in a temperature of 60° to 65°. They grow and develop rapidly under stove treatment, and in two years will produce bulbs large enough to flower. Those who did not sow seed then may sow some at once.



PRACTICAL BEE-KEEPING.

No. 5.

HIVES and appliances now demand our attention. We must consider the most useful hive for profitable management, and also mention what may be called the absolutely necessary appliances in an apiary conducted upon the lines which we purpose to lay down as a guide to those who are willing to follow our advice rather than that of more advanced bee-keepers, who, regarding the interest of those who have large apiaries, seem, unconsciously perhaps, to disregard the position of those who are able to keep but a few stocks on an easy system of management. The skep still deserves attention as maintaining a very high position in all well-conducted apiaries. The most suitable size for a skep appears to be, taking one locality with another, 18 by 12 inches inside measurement. Such a hive must be stocked with either one large or two smaller swarms of bees either during May or June, or in the autumn, according to the directions which will be given in a future

article. Skeps are more profitable I find when the whole top surface is exposed for supering purposes. Bars can either be used in them, or they may be dispensed with, but if a loose straw top is used, then bars may with advantage be used beneath; frames are unnecessary, and may be discarded. The usual 4-inch hole for supering and feeding purposes generally seen in large skeps is far too small in the spring and summer to allow free passage to the hosts of eager workers carrying their stores to the supers. Stocks in skeps winter well, swarm early, work well in supers, and straw is very preservative of bee life. Skeps, it is true, do not admit of manipulation so well as the frame hive, but without such interference give equally good results when equal care and attention are bestowed upon them, thereby proving the futility of excessive interference. The management of skeps and frame hives, according to the system which it is here desired to inculcate, is very similar, except that in the one an occasional advantage—which is not present in the other—is given to the ability to remove each single comb.

Frame hives must be made of good sound timber, and may contain either deep or shallow frames. Twelve frames are quite sufficient for one body box, whatever the size of frame may be. If the standard frame is adopted the necessary size for the brood nest must be secured by using another tier of frames above or under the former, but as this matter has already been discussed only a few weeks ago it will not now be necessary to enter into any further details about the hive itself. One word of advice may be given, and that is that the greatest virtue in a hive is simplicity, and I may add that the hive is rarely in fault when good results are not attained; but generally the blame can be brought home to the manager. Now, of appliances it is not very easy to write, so great is the difference of opinion as to what is a necessity and what a luxury only. I give my own ideas, gained by practical experience in the apiary and from conversation with other practical men placed in a similar position. A pan for boiling or reducing sugar to syrup is required, and ought to be made so that it may be used for steaming the wax extractor in the manner pointed out some months ago. Everybody knows the trouble occasioned if old combs have to be reduced to wax by the old method. Many know the ease with which it may be done if a "wax extractor" can be used. A pan for boiling syrup and a wax extractor combined cost about 10s., if made in a very homely way something less.

Section racks in the proportion of six at least to every stock which it is proposed to work for comb honey must be made or purchased, and for simplicity, effectiveness, and cheapness those described last year under the heading of "Section Racks, and How to Make Them," cannot be excelled. Feeders of the round tin kind to hold some 5 lbs. of syrup at least will also be required, and can be made by any village tinman at a small cost—2s. each, at the outside. These feeders will hereafter be described in detail as clearly as possible. Crown boards are not required, but felting is. All coverings for hives should be of a pervious nature, so that damp generated in the hive by the bees or present through the state of the weather may pass freely away.

A few extra floorboards and cases for containing sections are all that necessity demands or expediency requires in a small apiary when comb honey is desired. Cases for holding finished sections should be made to contain twelve sections at the most; the risk of damage in transit is then reduced to a minimum. In an apiary where new or extracted honey is principally produced

rather different appliances will be required. I may say that it is evident to me that it is far more satisfactory and more profitable to work either for run or extracted honey or for comb honey, not to produce some of the one and some of the other.

An extractor may be purchased if the bee-keeper thinks that he can profit by it. If used in a proper manner, and with judgment, if honey is only extracted from super frames, and from these only when the cells are sealed and the honey is ripe, it may be an advantage. On this point I cannot speak with certainty; but honey may be run from the combs in the old-fashioned way, and the result will be a good uniform quality—if equal care is taken—not to be distinguished from that which has passed through the extractor, but the comb must be destroyed. The preservation of the comb is the main advantage of using an extractor. Super body boxes, containing frames similar to those in the permanent body boxes, will be required. Four of such super body boxes will not be too many for each stock. The frames in these super boxes may, of course, be different in size to those in the body box used for brood rearing, but it will be found more useful to have them of the same size, and identical in all respects. In the super boxes, however, the frames may be placed a little wider apart, say ten frames in the super where there are twelve in the body hive. The management of stock, both for producing comb and extracted honey, will be given in a future article. It is now sufficient merely to point out what are the appliances necessary to carry out the system of management which appears to be the most profitable. With the exception of section racks and cases the appliances necessary for the production of run or extracted honey will be identical with those required for comb honey in sections. Sections and vessels for holding the honey will, of course, be required, but these do not, as we have before explained, form part of the original or capital outlay.

It is now easy to reckon up what ought to be laid out on the purchase of hives and appliances. Bees may be bought at such various prices that it is hardly possible to quote even an average price, but from £1 to £1 10s. ought to purchase a good stock, and a swarm in May will be of the same value, the price of swarms gradually declining as the season advances. A swarm must be large, and be obtained in May or early June to be profitable. The extra outlay is easily recouped by the better results. An apiary may be started in a far less expensive manner, but with this we must deal in a future paper.—FELIX.

SPRING MANIPULATIONS.

I HAVE a hive of bees containing twelve bars, and last summer, although the bees were strong and the bars always full of honey, I could not induce them to go into the super. I found the bars had had no comb or foundation put in, and consequently the combs had been made across the bars, so that it was impossible to take them out without breaking the combs. I intend, about the beginning of April, to drive the bees into an empty hive, cut out the comb, put in some foundation, return the bees to the old hive, and place some of the comb, full of honey, on the top of the bars. This I could do without fear of robbing, as the super cover would prevent that.

Would you kindly inform me in the next issue of the Journal if this would be the right thing to do, as my knowledge of bee-keeping is but limited?

Any advice you could give me on this matter would be much appreciated.—G. B.

[We should certainly not treat the stock as you propose. All such manipulations in spring are injurious and sometimes fatal. There are two alternative methods of procedure each better than the one proposed. 1, To allow the stock to swarm and to send out a cast; to hive this cast and place the hive close to the old stock; on the twenty-first or twenty-second day after the issue of the swarm to drive out all the bees from the stock and unite them to the cast, the old hive being broken up, as it will then contain nothing but honey, pollen, and a little

drone brood, which may be destroyed. The swarm to be hived separately, of course, and placed in any convenient situation. 2, To place beneath the stock another hive—about the end of April if the stock is then crowded with bees—containing frames filled or started with foundation, closing the entrance of the top hive and compelling the bees to go in and out at the bottom hive. In a month or rather more the brood nest will be in the bottom hive, and the old hive will contain honey only and may then be removed.

The stock may be supered in the usual manner, but we have a suspicion that the brood frames were glutted with honey last year. A stock with a really strong population will always work in supers when properly managed. If you have reason to believe that there is a surfeit of honey in the hive the second will be your best plan. If you do not think that this is the case the first plan will be the most advantageous. You can form an idea of the weight of honey contained in the hive by weighing it, or even by lifting it if you have experience enough, provided that you have an approximate idea of the weight of the hive. We shall be glad to give you any further advice if there are any circumstances which you have omitted to mention in your letter, and which you now think material.—FELIX.]

FOREIGN RACES OF BEES.

I THANK "L. B. K." for his answer to my appeal for honey facts, and, again, for his further explanations. He doubts my bees being black. They are not black, but I daresay they are as black as any bees to be found in this country, except imported ones. I have never seen a "healthy" black bee; all that I have seen have been brown more than black, and I can look back for nearly thirty years and remember the brown masses I was set to watch when they settled on a Currant bush. Mine are descended from a queen bred in 1875. At that time there was only one stock of Ligurians within miles. It is of course possible that a drone from that hive mated with the mother of my queen, but I do not think it did so, for her progeny were no different in appearance from my others. Why I bred from her instead of any other was because she swarmed a week earlier than any other, and I utilised several young queens she left behind, and placed them at the head of other hives. To keep them as distinct as possible I have since reared queens sometimes in spring, getting two stocks specially forward for the purpose, sometimes leaving it until autumn. Last year I did the latter, and got only two queens fertilised out of seven. From ten stocks last season I took about 1000 lbs. of honey, the most from one being 120 lbs. Eight of these stocks were descendants of the queen above mentioned. The other two were stocks driven from cottagers' skeps the autumn previous, one of which shows a distinct Ligurian cross. These two stocks gave me about 90 lbs. each. In 1885 I had 700 lbs. from five stocks, all of the same strain. Since 1879 I have had an average of 70 odd lbs. from them.

"L. B. K.'s" best results appear to have been from Ligurians and their crosses, but through being subject to a certain disease he has discarded them in favour of Cyprians and Syrians, which do not appear to produce as much honey, but many more bees. I am writing in the interests of novices, those who reading of the wonderful yield of honey from a few hives of bees set it down as all profit, and at once buy bees and think their fortune is in a fair way for being made, and who being further misled by the reputed better qualities of foreign bees spend more money on them, only to find that they have more than plenty of bees but no honey. I personally know several such. Maybe it is our bad management, or perhaps we have been unlucky enough to get bad strains. One acquaintance of mine, who is expert to a county association, "italianised" his whole apiary in 1885, had no honey in 1886, and has "anglicised" for 1887. Mr. Simmins, who is one of our largest importers of foreign bees, mentions a stock at the head of which was a black queen, yielding last season above 200 lbs. of honey, and he begins to wonder if we have not been breeding from our wrong queens. If I had sent mine to the Heather I have no doubt some of them would have reached that total. Perhaps I will give them and some Ligurians a fly at it in the coming season.—NOTTS BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

Waite, Nash & Co., 79, Southwark Street, London.—*Wholesale Catalogue of Agricultural Seeds.*

Hogg & Wood, Coldstream, N.B.—*Price List of Agricultural Seeds.*



All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr.

Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

TO CONTRIBUTORS.—Our friends who favour with communications on controversial subjects will oblige by sending their articles as soon after they receive the *Journal* as possible. Our space is practically filled on Monday, and only articles that are "expected," and which arrive on Tuesday, can, as a rule, be inserted in the current issue.

Orchids (B.).—Please carry out your proposal and send specimens. From your description of them one at least appears a departure from the type.

Cinerarias (T. S.).—The flowers are of good size with broad florets, rich in colour, but somewhat loose and not symmetrically arranged. Whether this is the result of partial shrivelling or crushing in the box we are unable to determine. The variety appears to be worthy of preservation, though we suspect it possesses little commercial value.

Planting Box Edging (Hendon).—Edgings of Box may be formed any time during the present month when the weather is favourable for the work. We shall publish a practical article on the subject in time to be of service to intending planters.

Ventilating Vineries (A Youngster).—As you get older you will perceive more clearly than you appear to do now, that the air of a vinery can be changed without opening the front ventilators; and we consider that to throw them open when cold dry March winds are blowing is injurious rather than beneficial to Vines starting into growth. Cold air being heavier than warm enters freely enough through the top ventilators of houses, displacing the warmer and lighter in every part of the structure.

Ficus Sycomorus—Bread Fruit (York).—Both *Ficus Sycomorus* and *Ficus Carica* are found wild and cultivated in the regions you name. The Sycomore Fig is a strong growing tree, sometimes exceeding 30 feet in height, with stems 5 to 7 feet in diameter, with large branches proportionate to the size of the stem, and starting from that a short distance above the ground. The "Sycamine" has been thought to be *Morus nigra*. The Indian Bread Fruit is generally termed the Jack Fruit, *Artocarpus integrifolia*, and is found in the Indian Archipelago. The Bread Fruit of the South Sea Islands is *Artocarpus ineisa*.

Dividing Pyrethrums (S. S.).—The genial state of the weather at the time of dividing and planting is a chief factor in success. If the weather were mild now and our Pyrethrums had grown about 2 inches, as some of them have, we should not hesitate to divide and replant, but as it is cold with a dry easterly wind we shall let them alone. We divided a number during the first week of April last year, and did not lose one, but the weather was moist and mild, and the planting quickly done—that is to say, we did not dig up the plants and let them wait out of the ground till a plot was prepared for their reception, but all was in readiness before removal, and the planting was done without any drying of the roots. If you take advantage of mild weather you may safely divide your plants at any time when they have made about 2 or 3 inches of growth, securing a good number of roots with the divisions or offsets. Plant a little deeper than the growths are before removal, and inverted flower pots may be placed over them if a sudden change of weather should render a little protection from bright sun desirable in the daytime, or sharp frost at night.

Constructing Tomato House (An Old Subscriber).—The cheapest and best form of house is a span of about 10 feet width with a hed on each side of the pathway up the centre, which may be 3 feet wide. The sides can be of wood or brickwork about 4 feet 6 inches high, head room being secured by sinking the pathway. No side lights are necessary, but side ventilation is desirable, and which may be secured by wood ventilators in the wall immediately below the wallplate; or in the case of wood sides a board 9 inches wide fixed by hinges to the wallplate and opening outwards will answer. Ventilation should be provided at the apex or ridge. An opening about 9 inches wide will answer. It may be of wood, and raised or lowered by a simple movement in use in such structures. The hars may be about 3 inches by 1½ inch fixed about 15 inches apart; 21-ounce glass is most suitable. The Tomatoes will require a hed about 18 inches deep, six inches of which should be drainage and a foot depth of soil, its surface about 1 foot from the trellis, which should be 6 to 9 inches from the glass. Such houses can be purchased at a cheap rate, being much used by the trade. For a house of the width named two rows of 4-inch pipes would be required on each side to grow Tomatoes in winter or to have them early and late. The assessment is based upon the annual value or rental.

Top-dressing Auriculas (A. E., Surrey).—The practice of removing an inch or more of the surface soil in early spring and adding fresh, and generally richer compost, is not so generally adopted now as it was some years ago. It has, no doubt, been beneficial to many plants in inciting fresh root action, but in the case of others it has been of no service whatever. We have more than once top-dressed a few plants of a given variety, but not all, and failed to see any improvement of those "assisted;" and we have seen top-dressing applied which no roots entered, and in that case the fresh compost did no good. Given healthy plants with active roots, we find that with careful watering and an occasional sprinkling of fine bonemeal they grow and flower quite as well without the orthodox top-dressing as with it; but if the soil were exhausted or stagnant, the exchange of some of it for better would be advantageous to the plants. Generally speaking we shall not err in stating that if a person cannot grow Auriculas well without top-

dressing, resorting to that practice will not bring him success. When an interchange of soil is desirable the sooner it is made the better, after the plants start growing in the spring.

Glou Morceau Pear (A Nurseryman).—The Pear you have sent is not Beurré d'Arenberg, but the variety above named. You are quite right in your contention. On this subject the following note by Dr. Hogg in the "Fruit Manual" is explanatory:—"Great confusion exists between Beurré d'Arenberg and the Glou Morceau, which in numerous instances I have found grown as the Beurré d'Arenberg. The cause of this confusion is accounted for in this way: about the same time that the Beurré d'Arenberg was raised by Abbé Deschamps, of the Hospice des Orphelins at Eoghien, M. Noisette of Paris sent out the Glou Morceau, which he had procured from the gardens of the Duc d'Arenberg under the name of Beurré d'Arenberg, consequently there two distinct varieties in cultivation under the same name, and which continue till the present time. But the characters of the two are perfectly distinct, and may easily be distinguished by the stalk alone—that of Beurré d'Arenberg being short, thick, and fleshy, and inserted obliquely; whilst that of Glou Morceau is long, straight, and woody, inserted perpendicularly with the axis of the fruit." We had no better Pears throughout February than fruit of Glou Morceau gathered from orchard standard trees grown in rather gravelly soil in the neighbourhood of London.

Taylor's Sulphur and Lime Mixture for Fruit Trees (H. Jackson). | After some little trouble we have found what we presume you require. We must remind you, however, that Mr. Taylor advised its application to trees in a dormant state. It was in January, 1874, that we published the following from his pen:—"There are many mixtures recommended for dressing fruit trees, some of which kill the insects, some kill the trees, and others kill both if used as directed by the vendors. The following is the best I have tried; it can be made by anyone, is quite harmless, and as far as my experience goes, birds will not touch it. The ingredients are a quarter peck or more of quite fresh quicklime, a pint of sulphur, and 1½ lb. soft soap. Choose lime that weighs very lightly, dip a few of the lumps in or sprinkle with water (hot water is the quickest in action), and place in a bucket or other vessel; sprinkle a little of the sulphur thinly over it, then add more lime: just damp enough to slack, and more sulphur on the top of it, repeating this till all the sulphur is used. When the lime is slack it will be seen that the sulphur is quite dissolved, and is scarcely visible, except in the darker colour it has given to the lime. The quantity of lime used is not important, so long as there is sufficient to dissolve the sulphur. The soft soap should be dissolved separately, and afterwards mixed with the lime and sulphur, and sufficient water added to make three gallons in all. If the mixture is not thick enough to apply with a brush, clay or more lime may be added; if the glaring white is objected to, mix soot with it. If mixed in the way I have described and applied in dry weather, no amount of rain will wash it off; but if lime is used that has been some time exposed to the air, the sulphur will not properly dissolve, and the first shower will wash all away. It is necessary to caution my readers against dissolving the sulphur in a house containing plants in a growing state, the gas emitted will burn up every leaf just as completely as if fire had been used. I have, however, never found trees injured from being planted with this mixture; it is only the sulphurous gas that is dangerous, and that, probably, would not injure plants in a dormant state."

Plants for Greenhouse Rockery (W. J.).—You do not state whether the rockery is to occupy a sunny or a shady position, and without such information to guide us we cannot give quite as satisfactory a reply as we would wish. As you require the names of Ferns in addition to other plants, and as these will only succeed satisfactorily in shade, we shall assume that the rockery will not be fully exposed to the sun. Of Ferns, *Adiantum Capillus-Veneris* and *A. hispidulum*, *Pteris cretica*, *P. serrulata* and *P. tremula*, *Nephrodium molle*, *Doodia aspera* and *Scolopendrium vulgare* are well adapted for a small rockery; whilst similarly of other plants there are the ornamental foliage *Begonias*, also *Vinca major* elegantissima, *Tradescantia zebrina*, *Isolepis gracilis*, and *Farfugium grande*. The *Vincas*, *Tradescantias*, and *Isolepis* are trailing plants, and *Adiantum Capillus-Veneris* and *Scolopendrium vulgare* are suitable for planting in the crevices of the stones. The surface of the soil after the foregoing are planted may be covered by *Selaginella Kraussiana*, which will give the rockery a neat appearance. If the position should be an exposed one employ in the place of the Ferns *Aspidistra luvata*, *Mesembryanthemum roscum*, *Saxifraga pyramidalis*, and *Opuntia vulgaris*. In constructing the rockery take care to use a fertile compost of two parts loam and one part each of loam soil, peat, with an admixture of sand, and during spring and summer to keep the soil moist by frequent waterings.

Names of Fruits.—The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and surplus fruits beyond that number cannot be preserved. (*Cuckfield*).—1, decayed; 2, Claygate Pearmain; 3, Golden Winter Pearmain; 4, Cox's Orange Pippin; 5, Royal Russet; 6, Gloria Mundi. (*L. R.*).—Apple, Dumelow's Seedling; Pear, Josephine de Malines (*Philomelos*).—1, Potts' Seedling; 2, English Codlin; 3, De Nieve; 4, Golden Winter Pearmain; 5, Devonshire Quarrenden. The others you have under correct names. They have kept well.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (*B. C.*).—*Primula sinensis*.

COVENT GARDEN MARKET.—MARCH 9TH.

TRADE dull. Good samples of Grapes making better prices. A few strawberries to hand, with little demand.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples	½	sieve	2	0	to 5	0			
" Nova Scotia and									
Canada, per barrel	10	0	13	0					
Cherries	½	sieve	0	0	0	0			
Cobs	100	lb.	60	0	70	0			
Figs	dozen	0	0	0	0	0			
Grapes	lb.	4	0	8	0				
Lemons	cask	10	0	15	0				

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes	dozen	1	0	to 0	0				
Asparagus	bundle	8	0	0	0				
Beans, Kidney ..	per lb	1	6	0	0				
Best, Red	dozen	1	0	2	0				
Broccoli	bundle	0	0	0	0				
Brussels Sprouts	½ sieve	2	0	2	6				
Cabbage	dozen	1	6	0	0				
Capiscums	100	1	6	2	0				
Carrots	bunch	0	4	0	0				
Caulliflowers ..	dozen	3	0	4	0				
Celery	bundle	1	6	2	0				
Coleworts	doz. bunches	2	0	4	0				
Cucumbers	each	0	6	1	0				
Eudive	dozen	1	0	2	0				
Heros	bunch	0	2	0	0				
Leeks	bunch	0	3	0	4				

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.
Aralia Sieboldi ..	dozen	9	0	to 18	0				
Arbor vitae (golden)	dozen	6	0	9	0				
" (common)	dozen	6	0	12	0				
Azalea	per dozen	24	0	36	0				
Begonias	dozen	4	0	9	0				
Cineraria	per dozen	9	0	12	0				
Cyclamen	dozen	12	0	24	0				
Dracæna terminalis,	dozen	30	0	60	0				
" viridis	dozen	12	0	24	0				
Erica, various ..	dozen	9	0	12	0				
Euonymus, in var.	dozen	6	0	18	0				
Evergreens, in var.	dozen	6	0	24	0				

CUT FLOWERS.

	s.	d.	s.	d.		s.	d.	s.	d.
Abutilons	12 bunches	2	0	to 4	0				
Arum Lilies	12 blooms	4	0	6	0				
Azalea	12 sprays	0	6	1	0				
Bouvardias	per bunch	0	6	1	0				
Camellias	blooms	1	6	4	0				
Carnations	12 blooms	1	0	3	0				
"	12 bunches	0	0	0	0				
Chrysanthemums	12 bunches	0	0	0	0				
"	12 blooms	0	0	0	0				
Cornflower	12 bunches	0	0	0	0				
Cyclamen	12 blooms	0	4	0	9				
Dablias	12 bunches	0	0	0	0				
Epiphyllum	doz. blooms	0	6	0	0				
Encharis	per dozen	4	0	6	0				
Gardenias	12 blooms	12	0	24	0				
Hyacinths, Roman,	12 sprays	1	0	1	6				
"	12 sprays	4	0	6	0				
Lapageria, white,	12 blooms	2	0	4	0				
Lapageria, red ..	12 blooms	1	0	2	0				
" longiflorum, 12 blms.	0	0	0	0	0				
Lilac (white), French, bunch	6	0	8	0					

	s.	d.	s.	d.		s.	d.	s.	d.
Lily of the Valley, 12 sprays	0	9	to 1	0					
Marguerites	12 bunches	2	0	6	0				
Mignonette	12 bunches	4	0	6	0				
Narciss, Paper-white, bunch	0	4	0	6					
" White, English, bunch	1	3	1	6					
Pelargoniums, per 12 trusses	0	0	0	0					
" scarlet, 12 trusses	0	6	1	6					
Roses	12 bunches	0	0	0	0				
" (lador), per dozen	1	0	2	6					
" Tea	dozen	2	0	4	9				
" red (French)	dozen	2	6	3	6				
Parma Violets (French)	6	6	7	0					
Poinsettia	12 blooms	0	0	0	0				
Primula (single)	per bunch	0	4	0	6				
" (double)	per bunch	1	0	1	6				
Stocks, various	12 bunches	0	0	0	0				
Tropæolum	12 bunches	1	6	2	0				
Tuberose	12 blooms	2	0	4	0				
Tulips	doz. blooms	0	6	1	0				
Violets	12 bunches	1	6	2	6				
" Czar, French, per bunch	2	0	2	6					



CHEMICAL MANURES.

THIS is a subject in connection with improved farming which we have often brought under the notice of our readers. In doing so hitherto we have generally had something to tell about the use of manures and the method of application of them in our own practice. We have also given the formula of mixtures which have answered for certain crops, such formula being set forth, not as the best possible one for a given purpose under diverse conditions of climate and soil, but rather as that which has answered best under such a test. We may fairly claim for ourself a desire to assist in the noble work of improvement in agriculture in which so many earnest workers are now engaged, and we certainly believe that such improvement is possible, and that general united effort is called for to ensure it as soon as possible.

Quite in vain is it to cry out for protection, for a bounty on Wheat, or similar forms of State aid. What we want and must have is help from within—that self-help which we know will do more to enable us to combat, and in no inconsiderable degree overcome, the effects of

low prices which have fallen upon us, and which appear likely to continue. What do we know of the soil we cultivate—its nature and requirements? It is true enough that we possess some knowledge of these things, but at best it is very superficial. We are still ignorant of the way to achieve maximum results at a minimum cost. That is the point, and when we become perfected in such knowledge we shall once more be able to hold our own in the keen competition upon which we have entered with the markets of the world. Not only must we strive for quality but also for quantity in our farm crops. Instead of being the extraordinary crop of a few favoured farms, five quarters an acre of Wheat must be the ordinary crop of all farms. Impossible! do you say? We grant that it is so under inferior or faulty cultivation, but we may add that we know from actual experience it is possible, even in soils that are naturally thin and poor.

Agricultural experiments have now for several years been carried on in Bedfordshire, Aberdeenshire, and Sussex. Other and most important experiments are also being tried in Norfolk under the auspices of the Norfolk Chamber of Agriculture. We believe we are correct in saying that the West Norfolk Farmers' Manure Company at King's Lynn is a practical outcome of such experiments, and under the guidance of the able manager, Mr. Thomas Brown, farmers are now able to procure manures for special crops with a feeling of assurance that they have got the best-known mixture of genuine chemical manures for their purpose.

A report of the Norfolk experiments has been recently published, which tells us how in 1885 Mr. Clare Sewell Read and Mr. F. J. Cooke attended a special meeting of the Royal Agricultural Society to consider the necessity of establishing experimental stations throughout the country in conjunction with the different agricultural societies. Early in 1886 Dr. Voelcker visited Norwich, and gave an address on agricultural experiments. This was followed by arrangements being made for the immediate carrying out of certain experiments on land at Whitlingham, Flitcham, and Aylsham, which had been given up for the use of the Chamber by Messrs. Garrett Taylor, F. G. Cooke and B. B. Sapwell. A competent person was engaged to superintend the work, which was carried out under the supervision of the three gentlemen, who gave land for the purpose.

We do not intend giving anything like a full statement of the experiments and results here, but we must call special attention to the extraordinary results of Mr. Cooke's trial of two mixtures of manure upon a crop of Barley at Flitcham Abbey. On one plot of land the manures used per acre were 3 cwts. nitrate of soda, 3 cwts. superphosphate, and 2 cwts. muriate of potash, the result being 54·2 bushels of best Barley and three bushels of tail corn. Weight of grain per bushel, 54·7; weight of straw, chaff, &c., 1 ton 8 cwts. 24 lbs. On the other plot the manures used per acre were 3 cwts. nitrate of soda and 3 cwts. superphosphate, the result being 9·2 bushels of best Barley and 11·5 bushels of tail corn. Weight of grain per bushel, 52·2; weight of straw, chaff, &c., 13 cwts. 3 qrs. 10 lbs., which shows that an expenditure of 16s. for 2 cwts. of potash per acre upon plot 1 produced 45 bushels more of marketable corn per acre than plot 2, which had no potash, but as the report states was otherwise treated in all respects exactly the same. It also adds that, judging from previous experiments, 1½ cwt., or even 1 cwt. of potash, would have produced the same result.

The 3 cwts. of nitrate of soda was clearly an experi-

mental dose. We have found in our own practice 1 cwt. per acre of it answer so well that we never exceed that quantity. In addition to that, with muriate of potash and superphosphate we are also using this season fine bone flour.

WORK ON THE HOME FARM.

The long spell of fine weather has enabled us to press on all farm, work with ease, and with much less labour than usual. Even newly ploughed land is quickly suitable for sowing, and any foul land should be cleaned while the weather continues so favourable for such work. We have a few acres to lay down to permanent pasture, which are very foul with couch grass. Ploughing, followed by harrows, cultivators or horse hoes, should enable us to get out the twitch and turn it, but we shall keep on stirring the land till this is done thoroughly, and then sow the grass seed with a crop of Oats. It was suggested to us that Barley should be used in preference to Oats, but we could not agree to this, both because of the uncertainty as to when we could get the land clean, and because Oats are a safe crop to sow late and upon poor ground. We cropped much of our poor land with Oats last year, and good reason have we to be glad that we did so, for the fine supply of grain and straw has been and is still of the greatest possible use for feeding our live stock, and so to enable us to avoid heavy expenditure for cattle food. True it is that we are using some of Mackinder's Lamb Food for our home flocks, but our expenditure of a certain sum upon this wholesome and most nourishing mixture is fully justified by the results of last year. We wish to dispose of our lambs early in June, and in order to do this advantageously both ewes and lambs must be well fed. We saw some hoggets sold recently for very little more than we got for our lambs last June. Judging from the appearance of those hoggets we could see they had never been really well fed. Anything like profit from animals so badly managed—or rather mismanaged—is very doubtful. After our lambs were sold last year, we soon began buying old sheep draughted for sale from breeding flocks. Our object in doing this was folding on poor land, and by autumn we had got together a lot of useful sheep for our purpose, and we have no doubt that the effect of the folding will be visible in the crops this year. The sheep have done their work. They have been fattened, and have for some time been on sale week by week. Prices have not always been so high as we wished, but on the whole our sheep speculation has answered well, the sheep doing something more than paying expenses.

OUR LETTER BOX.

Manure for Grass Land (J. H. W.).—If, as you say, you obtained such excellent results last year from the use of the mixture of manures we recommended, why do you not continue using them? We have repeatedly explained the importance of an annual dressing of the same chemical manures, and not of different manures. The bonemeal and soot, if mixed in equal parts and applied at the rate of 6 cwt. per acre, will certainly do good, but the result cannot be expected to equal that of last year. We suppose that when you speak of your intention to dissolve bonemeal you mean to saturate it with sulphuric acid. The wisdom of such a proceeding is very questionable. Far better would it be to mix an equal or even double quantity of mineral superphosphate with the bonemeal. The mixing should be done four days before using the manures, in order that the acid of the superphosphate may act sufficiently upon the meal to render it soluble, and consequently capable of acting more quickly upon the pasture.

METEOROLOGICAL OBSERVATIONS.


CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain
1887. Feb. and March.		Baromet- er at 32 ⁵ and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperatnre.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass		
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sunday	..... 27	30.687	31.6	34.4	N.E.	38.8	49.0	29.2	63.5	24.2	—
Monday	..... 28	30.572	30.6	30.6	N.E.	37.7	49.2	27.3	74.8	22.8	—
Tuesday	..... 1	30.585	33.1	33.1	N.W.	37.2	37.2	27.6	55.8	23.2	—
Wednesday	..... 2	30.636	30.2	20.2	N.	36.8	45.6	27.8	79.6	23.8	—
Thursday	..... 3	30.599	35.8	35.8	N.	36.8	48.4	29.7	67.6	25.1	—
Friday	..... 4	30.435	29.4	29.4	Calm	36.8	38.2	23.1	53.2	29.3	0.010
Saturday	..... 5	30.310	33.9	33.9	N.E.	37.0	41.1	29.0	51.2	32.6	—
		30.556	32.5	32.5		37.3	44.2	28.4	63.7	23.6	0.010	

REMARKS.

27th.—Slight fog and white frost, then very fine day.
28th.—White frost and slight fog till about 10 A.M., then fine and bright.
1st.—Cloudy with white fog in morning, bright afternoon.
2nd.—Foggy till about 11 A.M., then bright and pleasant.
3rd.—Fog in morning and evening; day fine, but not clear.
4th.—Dense fog, diminishing gradually, but fog all day.
5th.—Dripping mist early, cloudy in morning and about sunset, bright in the middle of day and in the evening.
A rainless week with daily fog (the 0·10 inch on the 4th being fog), but a good deal of bright sunshine; barometric pressure very high: temperature about 4° below the average and 9° below that of the preceding week. It is noticeable that at 9 A.M. on six days of the week the readings of the dry bulb and wet bulb thermometers were alike, and that on three days the grass min. was higher than the shade min.—G. J. SYMONS.



COMING EVENTS

17	TH	Linnean Society at 8 P.M. Preston Spring Show.
18	F	
19	S	
20	SUN	4TH SUNDAY IN LENT.
21	M	
22	TU	Royal Horticultural Society. Fruit and Floral Committees at 11 A.M.
23	W	Royal Botanic Society's Spring Show.

THE WEATHER, LAND, AND CROPS.

UNTIL the middle of last week, when snow was reported as covering the ground deeply in Scotland and several districts in England, the weather had been, if not the most pleasant to man, more favourable to the amelioration of the soil than it had been at a corresponding period for many years past, and the low temperature that prevailed, with a dry atmosphere, usefully retarded the growth of fruit trees and Roses. But the same cold dry air that was of benefit in those respects abstracted the moisture from such winter-standing crops as hardy Lettuces, Spinach, and Parsley to such an extent that those crops have practically vanished from many gardens; while Cabbage plants especially in light soil near towns have been almost annihilated.

Considerable inconvenience will be experienced through the partial or entire loss of those crops; and even the present demand for vegetables cannot easily be met, the market supplies of "green stuff" being scant and inferior. When common Turnip tops of anything but tempting appearance realise 1½d. and 2d. a pound in London, as is the case now, we have a tolerably clear indication that fresh green succulent vegetables are the reverse of abundant in the country. This scarcity is no doubt a present inconvenience, but it may be expected that the ultimate advantages accruing from the same cause that has checked the advance of vegetation will greatly preponderate. Good fruit crops may be hoped for, and, what is even of greater and wider importance, there ought to be a decided improvement in agriculture.

Not for years past has the land in February and the first fortnight of March been in such a free working state, so easily and economically cleaned, and so favourable for the sowing of crops over the greatest area of the kingdom. The snow, where it has fallen, must of necessity check operations on farms and in gardens. The few rather heavy flakes that fell in the vicinity of the metropolis on Saturday last only touched the ground to vanish, brisk but not very severe frost and sunny days succeeding, leaving the land as dry as before. But on Tuesday morning the ground around London was covered about 4 inches deep with snow. In the City most of it melted as it fell, and the day was one of the darkest and most miserable of the season. Wise have those gardeners and amateurs been who pressed forward the work of digging, Potato planting, and sowing of important crops when the ground was in such an excellent state for their reception, and those who failed to do so may possibly now have to wait some time for an equally favourable opportunity.

Though there has been sufficient cloud and wet this week, it is worthy of record that in the South of England there has been about 10 per cent. over the normal

average of sun from the middle of January to March 14th, and there has been less rain within the same time than during the corresponding period for a quarter of a century. Before the sudden and adverse change referred to a more hopeful tone pervaded agriculturists, at least those of them from which energy and effort have not departed, and they were looking forward to a better season than those of the past few years.

Crops and plants within the fog zone of London have suffered of late, and in some cases seriously, for the fog not only destroys Orchid flowers as fast as they expand, but also has a decidedly injurious effect on vegetables, such as those above mentioned, hence the greater difficulty in preserving them through the winter and early spring months than exists in colder yet clearer localities.

THE ROYAL HORTICULTURAL SOCIETY.

At a meeting of the Council of the Royal Horticultural Society, held on the 8th inst., a draft memorial for submission to her Majesty the Queen, prepared by the President of the Society, was read, and Sir Trevor Lawrence, Bart., was requested to lay the same before Her Majesty at an early date.

The memorial briefly reviews the history of the Society since its foundation in 1804, and, after setting forth its intimate and influential connection with the progress of practical and scientific Horticulture, refers to the beneficent influence which the late lamented Prince Consort exerted over its fortunes, which have steadily declined since the removal by death of His Royal Highness from the Presidency of the Society until, in 1882, after years of continually increasing financial difficulties, the Society, being unable to carry out the terms of its agreement with the 1851 Exhibition Commissioners, was compelled to give up possession of the Royal Horticultural Gardens, and is now brought face to face with the grave problem, not only of how its future work is to be carried on, but even of how its existence is to be maintained. The memorial, after alluding to the prestige of the Society at home and abroad, prays Her Majesty to use her gracious influence to obtain for the Society a sufficient portion of ground on the South Kensington Estate for a building to accommodate its committees, its valuable library, and its offices, together with the use of the Conservatory and Quadrants in which to hold its shows. In concluding, the memorial assures Her Majesty that the Council of the Royal Horticultural Society approach her with the hearty concurrence and support of the most eminent horticulturists of the kingdom, both amateur and professional, and in the firm conviction that force is added to their appeal not only from the past history of the Society, but also from the fact that the sphere and scope of its work are distinctly germane to the objects for which the land at South Kensington was bought.

THE PROPOSED GARDENERS' ORPHANAGE.

No cessation of interest is apparent on the subject of Mr. C. Penny's excellent proposal, but, on the contrary, the idea appears to have taken a firmer hold of the public mind. We are glad to learn that steps have been taken for holding a meeting in London for the consideration of the scheme, and of propositions that will doubtless be submitted, and it is reasonable to assume that a committee of management will be appointed to carry out the project on lines that will be determined as the best adapted for the purpose. Mr. A. F. Barron, Superintendent of the

Royal Horticultural Society's Garden, Chiswick, is appointed Secretary *pro tem.*, and communications can be addressed either to him or Mr. Penny. The following list of those who have already subscribed, or promised to do so, sufficiently indicates the importance attached to the suggestion, and how willing horticulturists are to support it. There is, we think, little doubt that immediately the plan to be adopted has been decided upon subscriptions will flow in readily. In the meantime the promoters would be probably assisted by suggestions from those who have had experience in the modes of conducting and the costs of managing such institutions, several of which have proved very satisfactory.

PROMISES HAVE BEEN RECEIVED BY MR. PENNY FROM THE FOLLOWING GENTLEMEN WHO WILL SUBSCRIBE.

Mr. G. R. Allis, The Gardens, Old Warden Park.
 Mr. G. Aslett, " Warren Wood.
 Mr. Adams, " Lyme Park.
 Mr. Allen, and Two Men, The Gardens, Ashwick Rectory.
 Mr. Allen, The Gardens, Sleaford.
 Mr. Adams, " Bank Hall.
 Mr. Allen, " Burnley.
 Mr. Adams, " Brookhill.
 Mr. G. J. Beale, Messrs. Carter & Co., Holborn.
 Mr. W. Bull, New Plant Merchant, Chelsea.
 Mr. A. F. Barron, Chiswick.
 Mr. W. L. Bird, The Gardens, Morton Hall.
 Mr. G. J. Barnes, " Stoodleigh Court.
 Mr. G. Bolas, " Hopton.
 Mr. A. J. Ballhatchet, " Fulham Palace.
 Mr. J. Blears, " Creton.
 Mr. Bailey, " Lupatth Park.
 Mr. Bissett, The Gardens, Conholt Park.
 Mr. G. J. Bolt, The Gardens, Betting House.
 Mr. F. Brownell, The Gardens, Frycroft.
 Mr. E. Burton, " Linsfield.
 Mr. E. Bigg, " Fromewitfield.
 Mr. J. Bird, The Nurseries, Downham.
 Mr. W. Coleman, The Gardens, Eastnor.
 Mr. J. Coombe, " Hendre.
 Mr. A. Cromond, " Knoyle House.
 Mr. G. Claydon, " Woodbury Hall.
 Mr. H. Carter, " Dom hill.
 Mr. G. Cook, " Quorndon.
 Mr. G. A. Colthorpe, " Summerville.
 Mr. J. Clarke, " Ribbleton Hall.
 Mr. J. F. Coombes, " Englefield.
 Mr. Cummins, The Grange Gardens, Wallington.
 Mr. G. H. Copp, The Gardens, Holnest Park.
 Mr. H. Cannell, Home for Flowers, Swanley, Kent.
 Mr. F. Dranfield, The Gardens Valentines.
 Mr. Douglas, " Barkingside, Ilford.
 Mr. Howell, " Headington Hill.
 Mr. C. Dull, " Headington.
 Mr. G. Lawrence, " Bellshanger.
 Mr. J. Lambert, " And Men, Onslow Hall.
 Mr. R. Lye, " Sydmon Court.
 Mr. A. Lancaster, " Holkham.
 Mr. Letts, " Aske Hall.
 Mr. T. Low, The Nurseries, Clapton.
 Mr. McAdam, The Gardens, Auchen.
 Mr. W. Miller, " Coombe Abbey.
 Mr. J. Muir, " Margam Park.
 Mr. D. McDonald, " Totteridge.
 Dr. Masters, *Gardeners Chronicle*.
 Messrs. J. R. Pearson & Sons, Chilwell.
 Mr. W. Richards, *Gardeners Chronicle*.
 Mr. Roberts, The Gardens, East Cliff Lodge.
 Mr. F. Russel, " Woodlands, Chobham.
 Mr. Robinson, " Ramsberk.
 Mr. Roberts, " Highfield Hall.
 Mr. C. H. Sharman, Messrs. Carter & Co., London.
 Mr. Sutton, The Gardens, Pains Hill.
 Mr. Smythe, and men, Basing Park.
 Mr. Simson, New Somerby.
 Mr. Salcombe, The Vineyard, Tiechurst.
 Mr. Throssell, The Gardens, Chilwell Hall.
 Mr. O. Thomas and friends, Chatsworth.
 Mr. Thomson, Garvald House, Peebles.
 Mr. Thoms, West Grinstead Park.
 Mr. Temple, Carron House.
 Mr. A. Turner, The Nurseries, Slough.
 Mr. Upjohn, Worsley Hall.
 Mr. Young, The Gardens, Abberley Hall.
 Mr. Vine, " Oak Park.

Messrs. Veitch & Sons, Royal Nurseries, Chelsea.
 Mr. W. Whitaker, The Gardens, Crewe Hall.
 Mr. B. Wadds, " Birdsall.
 Mr. A. Watson, " Primley Hill.
 Mr. C. Williams, " Lower Eaton.
 Mr. T. Wilkins, " Inwood House.
 Mr. J. Wallis, " Keele Hall.
 Mr. B. S. Williams, The Nurseries, Holloway, N.
 Mr. W. Williams, The Gardens, Strathern House.
 Mr. Willard, " Holly Lodge.
 Mr. Wildsmith, " Heckfield Place.
 Mr. Webber, foreman, Lowther Castle Gardens.
 Mr. Whitehurst, The Gardens, Oak Hill.
 Mr. Whiteley, " New Lodge, Hawkhurst.
 Mr. Wakeley, " Ponsandane.
 Mr. Craig, " Hamersknott, Darlington.
 Mr. J. Roberts, " Gunnersbury.
 Mr. Roberts, " Highfield Park.
 Mr. D. T. Fish, " Hardwicke.
 Mr. D. Thomson, Drumlanrig.

I AM desired to state that as soon as arrangements can be made, a meeting of gardeners and others who have signified their interest and approval of the proposition to establish a Gardeners' Orphanage or fund for the orphan children of gardeners, will be held in London to discuss the matter generally, and to take what steps may seem necessary in furtherance of the object in view.

In the meantime it would facilitate matters greatly if those who are disposed to support the proposition would kindly send in their names with any suggestions on the subject they may be pleased to submit either to Mr. C. Penny, The Gardens, Sandringham, King's Lynn, or to me as under.—A. F. BARRON, *Royal Horticultural Society, Chiswick, Secretary pro tem.*

VARIOUS proposals have been made in the *Journal of Horticulture* and other horticultural papers for commemorating the fiftieth year's reign of Her Gracious Majesty, but I consider the proposals inadequate to the occasion. No more fitting commemoration of the Jubilee of the Sovereign could be found than in the restoration of the Royal Horticultural Society by the Commissioners to its rights and privileges at South Kensington. The Society, to its own prejudice, has fulfilled its part well, and deserves sympathy and liberation from a most disastrous connection.

The proposed Orphanage is the only original idea of the many schemes. Mr. Penny will excuse my suggesting that it be attached to the Gardeners' Royal Benevolent Institution. How many of the gardeners of Great Britain and Ireland have their names enrolled as subscribers to the funds of the institution established for the benefit of the aged and infirm? A tenth! or is it not nearer 1 per cent. of the gardeners whose names appear in the "*Horticultural Directory*?" Would it not be better to consolidate what we have than to tempt by novelty the benevolent from cases of real distress? At the last election of pensioners of the Gardeners' Royal Benevolent Institution many deserving cases had to be passed for lack of funds. Such a state of things is not creditable to gardeners. Great generosity is shown by the patrons of horticulture and the trade generally to our institution. The apathy of gardeners is surprising. An institution under the patronage of Her Gracious Majesty the Queen and Her Apparent, a ducal President, and an array of Vice-Presidents, afford an ample guarantee of the judicious management of its funds, and surely is a fitting object of commemorating the Jubilee year. If an orphanage be needed, by all means have it, but attach it, if possible, to the Gardeners' Royal Benevolent Institution. A slight addition to the annual subscription would be sufficient to meet the requirements of the "bairns," and they could be placed on the list by ballot similar to the pensioners. I cannot, however, but observe, that considering the special provision made by the State for rearing and establishing in life orphan children, that the aged and infirm have a priority of claim on the benevolent.—G. ABBEY.

I SHOULD have hesitated to write upon this subject, but as one of your correspondents has appealed to me I cannot but answer the call, although I very much fear not in the way he would himself like. My own feelings and my professional instincts would lead me to look with a very favouring eye upon any scheme of benevolence which was intended to benefit the members of a calling which has added so much to the happiness of one's life, and were imagination a strong point in my mental constitution, which it is not, I might picture to myself a flourishing institution amidst the Surrey Hills—happy groups of boys and girls inhaling the pure atmosphere, or letting off their superabundant spirits in athletic games; but I am hopelessly practical, and so in this matter I must look at things as they are and as they are likely to be, not what we might wish them to be.

Has any one of your correspondents who advocates the Orphanage counted the cost? and yet this must be looked at. I suppose that it would not be considered large enough if it did not make provision for at least 100 orphans, fifty boys and fifty girls. The building of an Orphanage of that size, with all the necessary requirements, could not be calculated at less than from £15,000 to £20,000 (exclusive of site), and indeed I feel that I am putting it at a very low figure. Well, this is something difficult to obtain in these days; nor do I think that the cost of main-

tenance for each child, inclusive of what are called house charges—that is, superintendent, schoolmaster, schoolmistress, &c., can be taken at less than £30, and here I think again I am putting it below the mark. This would involve an annual expenditure of £3000. Will this be obtainable, and if so from whom? I have had a long and varied experience in the working of societies, and I know very well how difficult it is to keep subscriptions going. There may be a spurt at first and everything may look promising, but after a while they become more *promising* but little performing. More especially has this been the case during the past few years. I know that some people think money must not be spent on bricks and mortar, and that therefore the idea of expending the large sum I have named must be brushed on one side; but if so, then the annual expenditure must be increased to provide a place which will probably be inadequate and unsuitable. Now how is this large sum to be raised? I am sure that gardeners would not wish it to be done for them, can it be done *by* them? I very much doubt it, and I do so because of the state of the Gardeners' Benevolent Institution, which is about one of the best life insurance societies a gardener can belong to, and yet on looking through its list of subscribers it will be seen that the number of gardeners who subscribe bear but a small proportion to those who can never have any personal interest in this matter.

The mention of the Gardeners' Benevolent induces me to bring that forward as another reason why I look on the scheme as undesirable. It would, I fear, interfere with it. Many gardeners say that they can with difficulty subscribe to its funds, and were the Orphanage to be started I fear that subscriptions would be withdrawn, and it would suffer. Why cannot some such plan as this be adopted? There are orphanages already in existence—the London Orphan Asylum, Wanstead, &c.—and if a sum of money can be got together why not purchase the right, and have a certain number of orphans admitted without canvassing, just as beds can be secured at a hospital? This I know can be done, the right of presentation vested in a committee. This would not be so grand a scheme, but it strikes me as being more practicable.—D., *Deal*.

I HAVE read with interest the various propositions and letters relating to them, and I hope that, as an under gardener, I shall not be out of place in giving my opinion. I consider that Mr. Penny's proposition is a most noble one, and ought to be brought into action, as I think it would meet with the highest appreciation and the greatest amount of help from all classes connected with horticulture. With regard to under gardeners, I think it would meet with a fair share of assistance, for although they are not in immediate danger of leaving a family, I may say, "What man his end can tell?" and what could be a greater consolation to a man leaving a family than to think they are provided for? and how many young men are cut off in the prime of life without having had time to prepare for the little ones. I am afraid I shall be encroaching upon your space, so I will conclude by saying that I hope a trustworthy committee will soon be formed and business commenced, and as an encouragement to other under gardeners I will promise at least 10s.—AN UNDER GARDENER

I AM very pleased to see the support given in your columns to the above-named proposition, especially by such well-known practical men as Mr. Thomson and Mr. Goodacre, and I hope that in due time some well-considered scheme for carrying out the idea may result from the discussion. I can the more heartily wish to see it succeed, as I was the author of a few notes in a contemporary advocating the same idea, and in similar words to Mr. Penny the same week his note was published. I quite agree with your remarks in the leader of *Journal* for March 3rd, bearing on the necessity of a strong influential Committee being formed to take the matter into consideration. Then if this Committee decide that the matter is of a practical nature, I would suggest that printed circulars be sent, through local secretaries in each county, to all persons interested in horticulture soliciting subscriptions for the proposed Orphanage. The circular should be drawn up by the Committee, and be of a uniform character for all the country. A few pounds spent in this way would soon ascertain the feeling of the country on the subject. I think that if a tenth part of what Mr. Goodacre mentions were secured a fair start might be made. I would by all means, as far as possible, avoid bricks and mortar at first. A suitable house to accommodate, say, from ten to twenty orphans, with a good garden attached, could, I should say, be easily had in the London district. If this could not be purchased it might be leased for a term of years. It would be necessary to secure the services of a really worthy couple, man and wife, to act as "father and mother" to the home; one who had spent his lifetime as a gardener would be necessary. The requisite schooling of the children could easily be managed by grafting them into the nearest and most efficient school in the district where the home was. As funds accumulated, which I, for one, feel sure they would in the course of time, then by all means extend the operations of the home, either by adding to it or by securing land and building a new one. Perhaps, though, a supplementary one might be established in the north to take in the district north of the Trent. There are a number of other suggestions that could be made if the matter is gone into; but your generally crowded columns are perhaps not available for them just now. First get the funds, then the matter will soon be organised. I scarcely think it will be wise to join the Orphanage to the Gardeners' Benevolent—at present, at all events. The necessary working expenses would not be heavy for a time, as doubtless some influential horticulturist would act as Secretary to the Orphanage for a time without any salary, only expenses out of pocket. When once on a sound footing, then perhaps the G. B. I. and

the Orphanage might with advantage be worked under one management. There is certainly room and need for both, and likely to be for all time.—H. J. CLAYTON, *Grimston, Tadcaster*.

It seems very strange that while some of the most prominent members of the gardening profession are striving to establish a Jubilee memorial in the form of a home for the maintenance and education the orphans of gardeners, a contemporary of a certain status in the gardening world should be found publishing an article throwing cold water on the scheme. When I also find that the journal in question proceeds to throw vague hints about "charities that are fruitful sources income to some of their promoters," I am really astonished at the effrontery of the writer. Were it not too absurd it might be inferred that the promoters were expecting to reap some present benefit from the fund themselves. The name of the worthy originator should be sufficient answer to such insinuations. To the average mind there can be no question of the advantage of such an institution, and I am quite sure that few will require to have it proved to them "why the need has suddenly arisen." The need was always there, because the race of gardeners is no more exempt from early and sudden death than any other class of men. Indeed, when one considers the chills to which a gardener leaving the heated atmosphere of his greenhouses is always subject, it is evident that the risks he runs are greater than those of most men. It is also stated as a fact that but little encouragement has been received from those whose children the scheme is intended to benefit. So far from this being the case, letters are pouring in with promises of assistance from all quarters, but principally from gardeners themselves. In the course of a few weeks there seems little doubt that the scheme will be fairly floated, and will be beyond the power of any carping criticism to injure it.—J. H. PRATT.

THE suggested Gardeners' Orphanage must certainly be desirable to all sensible gardeners, therefore one and all ought to exert themselves to carry it out. Although it is Jubilee year, I do not think it best to press the subject until later, as in every town and village something has been proposed for the public to carry out; therefore everyone is expected to put their hand into their pocket for the purpose required, and the suggested sum of £30,000 will require much energy on the part of all concerned to collect.

Now, supposing the list is started and the sum falls far short in the end, could not that collected be used for a small orphanage? perhaps much smaller than many would like; still, for all that, it would exist, and we know that many a great and glorious ending had a very small beginning.

Or, supposing a sum of money is collected and invested in the Gardeners' Benevolent Society for the purpose of assisting widows and children who may be in real want when they have no longer the support of the husband and father; what will the readers of the *Journal* say to it?—A. L., *Worcester*.

MAY I venture to propose through your columns that by way of commemorating the Jubilee a special medal be struck, and one such presented to each prizewinner at the National Rose Society's shows this summer? I think, too, an additional prize might be given in each class, consisting of a medal (without money) when the exhibit is of sufficient merit; no exhibitor, of course, to receive more than one medal, however many prizes he might win. I would willingly subscribe for this purpose.—W. H. J.

POTATOES OLD AND NEW.

ARE THEY DEGENERATING?

It has been asserted by an experienced and much-esteemed contributor to the pages of the *Journal of Horticulture* that Potatoes are degenerating, the natural inference being that fresh blood is needed, or, in other words newer and more reliable sorts are required to replace the worn-out varieties. As far as my experience goes, this tendency of the "noble tuber" to become weaker and therefore much less profitable is not yet apparent, and where any variety is found to be either less vigorous, prolific, or disease-resisting than formerly, the cause is traceable, not to the decline in the Potatoe's vitality, but rather to faulty treatment on the part of the cultivator.

If Potatoes are so rapidly degenerating as some appear to imagine, why is it so much value is attached to one of the oldest yet in cultivation—viz., the true Old Ashleaf? I have sent planting tubers of this to friends in various parts of the country, and have been obliged to refuse applications by other gardeners, who assert they cannot purchase it. Those who possess it are well aware that it is the most valuable early sort whether for frames or warm borders, no novelty that I have yet tried being equal to it. Neither this nor any other good so-called Ashleaf variety can be said to have degenerated, nor will they so long as the sets are properly stored and prepared. Store any variety of the Ashleaf or Lapstone Kidneys in heaps, and allow them to form and lose one and perhaps two sets of sprouts; the shoots that will follow are bound to be weak and altogether opposite to what are needed for producing a good crop of tubers. Weaken the sets by premature sprouting, and degenera-

tion for one season at least is the almost certain consequence. Where large quantities of seed Potatoes are needed it is usually a difficulty to find sufficient storage room for them, and instead of being spread out thinly in a light room or shed and protected from frosts, they have of necessity to be stored in heaps. Some of the more vigorous rounds will even do good service after the loss of the prematurely formed sprouts, but many of the kidneys are inevitably much weakened by it.

It may be asked, How are we to avoid planting weakened sets? I answer, Easily enough. Leave a certain breadth of each sort in the ground till wanted for planting. Being well moulded up while the haulm is yet growing strongly, the frost must be severe indeed that would injure the tubers buried 3 inches below the surface. If the frost does reach them the thaw is gradual and leaves the tubers in a sound state. Several bushels of Scotch Champion and Magnum Bonum we have quite recently lifted and replanted were perfectly sound and had scarcely commenced sprouting, and for all purposes were much superior to those lifted and stored in the usual manner. They will be late in starting, most probably escaping late frosts, and the vigorous haulm will assist to mature proportionately heavy crops. The medium-sized sets are planted whole and the large ones cut, the remainder going to the labourers' pigs. Contrast this with the plan of planting small and partially exhausted sets, and my case will be found unanswerable.

CHANGE OF SEED AND SOIL.—I must plead guilty to having at one time advocated the practice of changing seed, under the idea that Potatoes coming off a soil of a totally different nature from that under our charge would be certain to be more profitable than any we might have saved and planted. Whatever might have been to a certain extent true in other districts as regards this theory, I have been obliged to confess it does not hold good here, the contrary more often being plainly discernible. If any new or old variety is received before it has sprouted in any way its true character is developed, but when the tubers have undergone the weakening process a correct opinion of its merits cannot be formed till we have had the preparation of the sets. Treat the home-saved and the imported sets similarly, and unless I am much mistaken it will be found that the necessity for changing seed is, to say the least, extremely doubtful. Purchased seed may sometimes give slightly better returns, from the fact that seedsmen supplying them usually take more care in selecting and storing Potatoes than do the majority of cultivators.

I have nothing to say against the systematic rotation of crops practised by many good gardeners, but many besides myself have found it possible to grow profitable crops of Potatoes on the same ground for many years in succession. This is not done from choice, but from necessity, no other crop being safe from game and its usual accompaniment—viz., vermin, in large quarters outside the garden walls. Our rotation consists of Magnum Bonum one year and Scotch Champion the next, the latter not being grown two years running on the same ground owing to its grossness of habit. Nor can our success be attributed to an abundance of farmyard manure, as none ever reaches that part of the garden. An occasional dressing of decayed garden refuse and lime, and an annual sprinkling of either sort or some kind of artificial manure, preferably that prepared and sold by reliable agents specially for Potatoes, answer our purpose. For the benefit of others who may use this for the first time this season, I should add we have no given quantity for an acre; our plan being to sow in the drills with the sets much the same as we would pepper our food. A well-worked thoroughly pulverised soil is of more consequence than the sort or quantity of manure employed. Ground that is hard and lumpy is the first to suffer from drought, and without a sufficiency of moisture poor progress will be made, no matter what kind of artificial manure may be applied. Not only are the crops heavier and finer out of deeply and well-worked ground, but the tubers are better both as regards appearance and quality. I am an advocate of early planting of late sorts, or say as soon as the state of the ground permits, and at this time (March 10th) all ours is completed. They may not apparently be ahead of others planted later, but they will make good progress under ground, and eventually surpass those kept longer out of the ground.

THE BEST SORTS.—Large collections of Potatoes are not to be commended, unless the owner happens to be an enthusiast. For all ordinary purposes six are ample for giving satisfaction to those who eat them. We cultivate more than six varieties, but it is principally by way of a hobby and not for supplying the table. Commencing with the Old Ashleaf. This is found the best for frames and warm borders, being also extensively planted in the open. The rows are 20 inches apart and the sets 9 inches. The young Potatoes are fit for use when rather larger than Walnuts, and the whole are cleared in time for various other successional crops. Then comes Veitch's Improved Ashleaf, which we plant either in rows 2 feet apart and

the sets 9 inches asunder, clearing off and recropping the ground, or the rows are placed 3 feet apart and Broccoli or Brussels Sprouts planted between soon after the Potatoes are moulded up. Myatt's Ashleaf, of which I believe we hold a true stock, crops more heavily than Veitch's, and this season will be more extensively planted; as it requires no more room, and is fit for use quite as soon as needed. Very shallow planting is resorted to with all our Potatoes, this both improving the quality and quantity of the crops resulting.

There are plenty of good second early sorts suitable for succeeding the Ashleafs, but strange to say we are now supposed to have Scotch Champion fit for use by the time wanted, and unless the crops of Ashleafs are very badly diseased the succession is complete. Mr. Taylor, when at Longleat, always commenced using the Champion much earlier than most people, and since we have adopted his plan nothing but praise has been accorded the Potatoes sent to table. The tubers are fit for use while yet the haulm is comparatively fresh. We commenced using the variety in September, and the supply is not yet exhausted. Magnum Bonum, the only other sort extensively grown, is not so dry when cooked, but can be sent to the table in good condition up to the time that new Potatoes are plentiful. If either of the last named are planted on fresh or rather rich ground the rows are disposed 3 feet apart; but on comparatively poor land or our regular Potato ground 30 inches is the most profitable distance, the sets being 10 inches apart. Neither is suitable for widely planting with the idea of cropping between, nor ought double cropping to be resorted to where manure is sparsely used, or the ground will soon refuse to grow anything satisfactorily.

Adhering to such old-fashioned Potatoes may be thought unwise, but having bought my learning am not going to risk another failure. At one time disease-resisting was the principal recommendation for a new or old sort, but we hear less about it now, owing to the little disease prevalent of late years. Any season may see our enemy at its worst again, and away will go half the fancy sorts. By all means try novelties that appear to be exactly what are required, but do not till they have stood the test of one or more bad seasons let them out those that experience has proved are trustworthy.

I have strong hopes that Sutton's Abundance will prove disease-resisting, and should this be the case it will most probably take the place of the Champion. It is a vigorous grower, heavy cropping, the tubers round in shape, being clean, rough skinned, with shallow eyes, while the quality is decidedly good. Another tried disease-resister will be found in Sutton's Reading Hero, and this may well be grown where either the Champion or Magnum Bonum is not of good quality, for they vary considerably in this respect. Messrs. Sutton & Sons have introduced many undoubtedly sterling novelties in the Potato line, most of which I have given a good trial. Reading Russet, Lady Trusecott, Sutton's Early Regent, and Sutton's Seedling are all of sturdy growth, crop heavily, and the tubers are mostly of good shape and quality. They possess the additional advantage of maturing early, and are therefore most profitable to the owners of comparatively small gardens as well as useful for the exhibitor.

RAPID INCREASE OF NEW VARIETIES.—Those who purchase expensive novelties naturally are anxious to plant as much ground as possible, and to these my plan of increasing the stock of any sort may be acceptable. I hit upon it when the much puffed up and very expensive Pride of America was first sent out, and last season we further improved upon it. From one pound of Potatoes I can easily obtain sufficient to occupy a row fully 72 feet long, and every plant shall, the season being favourable, produce as good if not better crops than result when whole sets are put out. About this time the tubers are placed in a pan or box partially filled with soil and covered with sifted leaf soil, loam, and sand. Placed in a gentle heat, say the floor of a Peach house or vinery, and the soil just kept moist, the sprouts soon start and at once commence rooting into the tempting compost. When these are about 2 inches long all are pulled carefully from the tubers and potted, either singly into 4-inch pots, or dibbled thinly in boxes of fine good soil, watered if the soil is at all dry, and returned to the gentle heat till well recovered, when they are at once transferred to a cool shelf under glass or stood in a cold frame or pit. The tubers are returned to their former quarters and again induced to form more sprouts, the process of removing and potting being repeated as before. We have in this manner obtained three sets of plants, and finally cut up the tubers with sprouts attached fit for planting. It is the rounds that lend themselves most readily to this, as far as I am concerned, original method of rapidly increasing the stock, but kidneys of the Snowflake type are also nearly as readily increased. I ought to add that the plants should be transferred to the ground before they are badly rootbound and at once be moulded up, and in case of frosts threatening be also lightly protected with branches of Evergreens

or inverted flower pots with the drainage holes covered. Plants thus obtained produce fewer tubers than those resulting from sets, but they are usually larger and of good form.—W. IGGULDEN.

BIGNONIA VENUSTA.

Mr. H. COSTER, Froyle Park Gardens, Alton, Hants, sends us some exceedingly handsome examples of the *Bignonia venusta*, which, as he remarks, "is not grown so much as it ought to be." One of the shoots sent was 2 feet long, bearing eleven trusses of flowers, the terminal one with four flowers and buds, and the others with from ten to twenty-four each. Other separate trusses were equally fine, and the colour—a rich

the native country of any particular plant does not always suffice. From Brazil (where this species is said to be found) we have stove, greenhouse, and even hardier plants than this."

As Mr. Coster remarks, the great beauty of the plant is seen in the long wreath-like branches having the trusses of flowers at every node. We should be glad to have particulars of the mode of culture adopted by our correspondent.

TRAINING OF YOUNG PEACH TREES.

In training young trees make it a point the first spring after planting, when the sap begins to rise, to bend the shoots which are



Fig. 37.—BIGNONIA VENUSTA.

orange—is most striking. The corollas are tubular, $2\frac{1}{2}$ inches long, with three lower lobes curving downwards, the two upper more erect and recurved at the apex. As a free flowering climbing plant this *Bignonia* is scarcely surpassed, and it will be remembered that the late Mr. C. Green, when gardener at Pendell Court, was very successful with it, and on one occasion he exhibited some grand trusses at South Kensington one of which we had engraved (reproduced in fig. 37). Mr. Green's system of culture was as follows:—"The chief requirements of *Bignonia venusta* seem to be a good well-drained border, consisting of turfy loam 3 feet deep, liberal supplies of water during the season of growth, liquid manure occasionally, and frequent syringing to maintain a healthy growth. It is never shaded here, or cut-in till after the flowering is over. The house in which it is grown falls to 45° sometimes during winter, though not in an airy greenhouse. Some grow this species with success under stove treatment, and this will serve to show that to name

left their full length towards the ground, and securing them to the wall in that position, the bend starting from the point whence the first of the young shoots is desired to proceed. The check thus given to the flow of sap causes a sufficient number of wood buds to push from each shoot to form a good sized tree the first year after planting—extension training pure and simple. Of course, as soon as the buds nearest the base of the individual shoots so treated have pushed into growth the nails should be drawn, the main shoots spread out on the wall after the manner of a hand and distended fingers and secured thereto, leaving sufficient room in the shreds for the development of the branches; the young shoots indicated above being trained at proper distances over the intervening space. By the foregoing remarks it will be seen that the pruning knife is judiciously withheld from young trees the first year after planting, as perhaps it may be the second year also, the object being to cover the space prescribed to each tree on the wall with bearing wood in as short a time as possible.

DISBUDDING.—This is an operation that should not be performed in a haphazard manner, as the formation of the tree for next year in a great measure depends upon the way in which the process of disbudding is carried out this season. It should be done by degrees, so that the trees may not experience any check in the operation. The side buds nearest their bases and the terminal ones should only be retained, rubbing one half of the intervening buds off and pinching the other half back to a leaf, laying those springing from the base of each shoot in the space reserved for them on the wall.

INSECTS.—The first indication in the way of curled leaves that the trees show of being infested with aphides, they should be syringed with tobacco water at the rate of one quart of tobacco juice to four gallons of water, which will not only destroy those then on the trees, but also render the leaves distasteful to their attacks during the year.—H. W. WARD.

NOTES FROM MY GARDEN IN 1886.

No. 1.—GLADIOLUS.

In again venturing to give a few notes on my experience in my small garden I have thought it best to begin with the Gladiolus, because as this is the season for planting them, my experience may be of use to those who may be commencing to grow this beautiful autumn flower, and may also interest those who have had some years' experience of a flower which also puzzles many in what seems its capricious way, but which may after all only seem so because they are ignorant of the proper way of treating it. It has gone through many phases of culture, and while failure has been the lot of most of those who have attempted it, success has so notably followed in other cases, that, comparing one with the other, we may perhaps arrive at some sound conclusion on the subject.

I grew only, exclusive of seedlings, about 400 corms last year, and they were planted in their different portions of my garden. One bed was in light rich garden soil, where flowers of one kind or another had been grown for some years, but where the Gladiolus had not been planted for the last two years. In this were grown some imported corms, a few of Mr. Kelway's (about half a dozen) and some of my own harvesting. Another bed was in stiffish soil, but where Gladiolus had been previously grown. In this were planted mostly corms of my own harvesting, including amongst them some of Mr. Dobree's seedlings; while the third bed, consisting exclusively of imported corms, was grown in a part of the garden which is much cooler and the soil more stiff than in the rest of the garden. They were all planted about the same time—namely, the first week in March, and in the same way. The beds had been previously prepared in the autumn, being supplied with a good quantity of rotted manure, which was dug in, and then exposed to the winter frosts, and so became well sweetened. The time for planting was a very good one, and the ground in good condition, although not so good as this present season, when the soil has been in the most beautiful mellow condition. They were planted in the way which I have adopted for some years—drawing a good drill the length of the bed, and then planting, so that they are about 4 inches under the surface when covered in. I put a little coarse road grit about them, which I think is better than sand, as it does not tend to cake so much; and as all our roads are mended with flint, I am not sure that the silica in the road scrapings are not of benefit to the corms; at any rate they keep the soil well open and prevent water from settling about them. As I have before explained, the beds are 4 feet wide, thus allowing room for four rows a foot apart, and I always place the corms about a foot apart in the rows, as this gives plenty of room, if it be necessary or desirable to shade for exhibition, and also for staking them, an operation which is absolutely necessary if the flowers are to be preserved from the attacks of wind, to which their tall and slender growth makes them susceptible. We had a fine time for blooming, although somewhat late, but the varieties bloom at very different times, some, as Shakespeare, beginning at the end of July, and some like Phœbus opening towards the end of September, in which month last year there was a great deal of cold and wet in the north and in Scotland, so that many did not bloom at all with them, and many opened very indifferently, but in the south we had not much to complain of.

And now, what was the result of my growth for the year? Unquestionably the finest blooms, the most healthy plants, and the best roots at harvest time were supplied by those which were planted at the bottom of the garden in stiffish soil, while the worst show was made by those which had been planted in the ground where they had been previously grown, and which was, perhaps, sick of them. I had not one diseased corm in the whole of the bed which contained 150 roots, and although I lifted them when the foliage was green, the corms were sound and of good size, although nothing to be compared to those grown by Mr. Burrell of Cambridge, and some of which I have been just planting, the plants very vigorous, the foliage healthy, and the blooms excellent. Owing to the lateness of the season some of my best flowers were not fully out at the time of the Crystal Palace Show, and I do not think that my stand there was as good as that in 1885. That this kind of soil is most suited for them I had, I think, clear evidence. I had divided the imported corms between the two beds, one in that just mentioned, and the other in that part of my garden where the soil is lighter and richer, but in this latter case I lost a good many of the corms, which were as

violently attacked by it as I have ever seen in any grown by myself from year to year, so that it is clear to me from this that the lighter richer soil does not suit them as well. I need hardly repeat what I have already more than once said, how thoroughly this view is confirmed by the experience of Mr. Burrell of Cambridge, whose rich unctuous soil combined with his drier climate have given him such a good chance, which he has not been slow to make use of. I have just been planting some of his corms, they have not shrivelled in the least, and were plump and sound. Another point which I have proved to my own satisfaction is that you get better blooms and corms when you cut the latter in two, than when they are planted whole—i.e. if they have a couple of eyes, which in most cases they have, the one stem has a better chance of flowering well than when two come from the same corm close together, and the latter formed is generally larger and of better shape, and it, of course, doubles the number for planting. Even where the corms are smaller this may be done with advantage. At first there may be hesitation about it, as there is about pruning, but success will give courage, especially when it is known that the practice is resorted to by all our best growers.

I have been somewhat disappointed in the varieties sent out by Souchet last autumn, but I do not like to pronounce positively about them, as they were grown in the bed of lighter soil, and so hardly had fair play; but I grew the following:—

Admiral Courbet.—Fine spike, carmine violet, white spot lined with cherry red. Such is the description given by the raisers. With me, however, the spike was not close enough, nor were the flowers so well set as in many of the varieties, such as Mabel, Nereide, &c.

De Brazza.—Long spike, very large flowers, shaded carmine red, large white spot. This is a promising variety, and I shall hope to find it better when grown in stronger soil.

Fille des Champs.—Medium height and small flowers. I rather imagine that this will be more a garden than an exhibition variety.

Margalena.—Very pale lilac, largely flamed with carmine red, lined with violet carmine. Of this I cannot say a great deal, but live in hope.

Masearille.—Compact and regular spike of very open and well-formed flowers of salmon rose colour, sometimes marked with yellow. This was one of the varieties which were as badly diseased as any that I have ever seen; and this, let it be remembered, was an imported corm.

Septre de Flore.—A vigorous plant, bearing a long spike of large flowers with white throat, with a red star in the centre, colour of the petals lovely salmon rose. I am hopeful that this is a promising flower.

Of the older varieties the following may be selected from, and they will, if properly grown, be sure to give pleasure, and can many of them be had at a moderate rate from a few pence to half-a-crown each:—Adolphe Brongniart, Baroness Burdett Coutts, Mount Etna, De Mirbel, Dalila, Néréide, Grande Rouge, Arabi Pasha, Abriote, Bicolore, Mabel, Tamerlane, Teresita, Jeannette, Atlas, Lacepede, Pasquin, Rossini, Camille, Le Vésuve, Africain, Cervantes, Shakespeare, Dr. Fontan, Chloris, Ovide, Benvenuto, Léandre, Pygmalion, Ondine, Hesperide, Demosthene, Horace Vernet, Meyerbeer, Corinne, Camélion, Phœbus, Colbert, Victor Jacquemont, Ama, and Panorama.

The Crystal Palace Company has made an additional class for amateurs in their schedule for this year, so as to give encouragement to them to come forward. They have protected the smaller growers by preventing those competing in the larger class from entering in the smaller one, and it is much to be hoped that lovers of flowers will take the hint and come forward in larger numbers to compete.—D., Deal.



KEW LIST OF SEEDS.—The second list of seeds of hardy herbaceous annual and perennial plants grown in the Royal Gardens, Kew, is just issued and can be obtained in the Gardens, price 6d. It comprises in forty-six pages a large number of names arranged in the natural orders, with authorities, native countries, and principal synonyms. About 2700 species and varieties are enumerated, proving how rich is the collection of these plants at Kew. Much attention has been given to the department in recent years, and the annual additions are now considerable.

— WE have received from Messrs. Vickers Collyer & Co., Leicester, a fruit of the so-called "MELON PEAR," a title which is inappropriate, and may, perhaps, to some persons be misleading. It is egg-shaped, $2\frac{1}{2}$ inches long by $1\frac{1}{2}$ in diameter, of a dull yellowish colour, and containing a firm juicy flesh, but of an indifferent flavour, due probably to its being ripened out of season and without sun. It much resembles a variety of *Solanum Melongena*, perhaps *guatemalense*, but

in America it has been considered distinct. It is described in the "American Gardener's Monthly" as a native of highlands in Central America, where it is known as "Pepino," a term also applied to the Cucumber. In California it has been grown successfully, one man at Los Angeles having had a plantation of 10,000. In "cool and frost-free places" it is said to thrive and prove profitable. Seed is seldom produced except in warm districts in Guatemala, and the sample sent to us does not contain any.

— WE are informed that DR. AUGUST WILHELM EICHLER, Professor of Botany at the Berlin University, and Director of the Royal Botanical Garden and Botanical Museum at Berlin, died on Wednesday, the 2nd March.

— WE understand that MESSRS. CUTBUSH & SON, HIGHGATE, have obtained the contract for furnishing, planting, and maintaining trees, shrubs, &c., in the various Board schools within the London district. The same firm announces that the annual exhibition of Hyacinths, Tulips, and spring-flowering plants will be open to visitors at the Highgate Nursery from March 25th to April 7th.

— JARROLD'S NORWICH ALMANACK AND DIRECTORY.—If any of our readers desire to know much about Norwich, its inhabitants and trades, we can recommend to them the above annual, which is a neatly bound volume of 391 pages, crowded with information pertaining to the city and county.

— CONSIDERABLE enterprise is displayed by Messrs. Wood & Son in offering SPECIAL PRIZES AT HORTICULTURAL SHOWS during the year. We observe in the list before us three silver cups and twenty-five silver medals to be awarded at twenty-six exhibitions. At several of these no conditions nor restrictions are imposed, but at others the products have to be grown with the aid of the special manures of the firm.

— DUCKS AND CROCUSES.—An extraordinary case is reported to us from Sheriff Hutton, where a Duck belonging to Mr. Hopperton gradually pined away and died. On a post-mortem examination being made it was found that the bird had swallowed two Crocus bulbs, which were found in its crop, and which had apparently germinated there, as they were growing distinct flowers.—(*Poultry*)

— MR. WM. PAUL, F.L.S., of Waltham Cross is announced to read a paper on the "LITERATURE OF GARDENING" before the Royal Society of Literature, 21, Delahay Street, Westminster, on Wednesday, the 23rd March, at 8 P.M.

— LARGE CINERARIA FLOWERS.—Some Cineraria flowers grown by Mr. H. Shoebridge at Carshalton have been sent to us. The largest is 3½ inches in diameter, colour mauve, with a large white centre. The cultivator describes them as Carter's Brilliant Prize. We do not remember seeing larger flowers than that, though possibly larger may be grown by some of our readers.

— FROM Messrs. & Thorpe, 8, Quality Court, Chancery Lane, we have received a copy of their KITCHEN GARDENER'S CALENDAR, a card-board sheet, 2 feet long by 1½ wide, showing in diagrammatic form when the principal crops should be sown, planted, stored, &c. Forty vegetables are named, and the instructions are given by means of variously formed coloured marks under the respective months. It is ingeniously designed, but is not likely to be of much practical value to gardeners, though it may prove suggestive to amateurs.

— THE EXHIBITION OF HYACINTHS in Messrs. Lucombe, Pince, and Co.'s Nursery, Exeter, on Friday last, and being favoured with fine weather proved very successful. The prizes were obtained by the Rev. T. J. Yarde, Chudleigh (gardener, Mr. Jesse Daw), Mrs. Rowe, Pennsylvania (gardener, Mr. Baker), Mr. W. C. Sim, Clyst St. George (gardener, Mr. A. C. Williams), Mrs. Norris, Pinhoe (gardener, Mr. F. Viney), and Miss Fripp, Teignmouth (gardener, Mr. J. Stiles). Large numbers of varieties were shown.

— DAMPING HOUSES.—"J. L. B." writes:—"I should like the opinion of some of your readers on damping the floors, stages, &c., after sunset. As a young man I was taught to do this once, and sometimes twice, during the evening; and since I have been head gardener I have sometimes advanced a step farther, and have syringed Ferns, Roses, and stove plants, more especially in houses heated by flues, some of which, I am sorry to say, are still under my charge. I have frequently syringed

Chrysanthemums and Vines after very hot days in summer. I thought by this I was imitating Nature, but it has occurred to me lately that I may have been doing wrong."

— HORTICULTURAL CLUB.—At the last monthly dinner and *conversazione*, held at the Club room, there was a good attendance of members. The discussion was opened by Dr. Masters, who alluded to the history and development of the Chinese Primrose as affording a remarkable illustration of the phenomena of variation independent of those produced by cross-breeding or hybridisation. The presumed causes, purpose, and significance of variations were briefly alluded to. Some of the variations were apparently due to excessive or to diminished heat, light, or food supplies; others to reversion to a primitive ancestral state, presumptive evidence of which latter is derived from an examination of the course of development of the seedling plant. That hybridisation had played no part, in recent times at least, was shown by the fact that until lately the wild form of the plant was not known, and, moreover, that all attempts to cross-fertilise the Chinese Primroses with pollen from other species had hitherto failed. The plant as first introduced to this country was a cultivated form, which immediately manifested a tendency to vary, and in practice it was always grown as an annual. During the last few years, however, the true wild species had been found in the mountains of Y-Chang in Central China by several collectors growing on bare limestone rocks exposed to the sun, and with but scanty supply of water. Dr. Masters, owing to the kindness of M. Franchet and Mr. Hemsley, was enabled to give a slight account of the wild plant, which is a perennial with a thick, woody, branching rootstock covered with the remains of former leaves, and with an internal construction different from that of any known Primrose. Messrs. J. Laing, G. Paul, Pearson, Girdlestone, D'Ombrian, Wilks, and others, took part in the interesting discussion which followed.

— ON Monday, 14th inst., the HULL AND EAST RIDING CHRYSANTHEMUM SOCIETY held their annual dinner at the Station Hotel. Mr. George Bohn, C.E., presided, and among those present were the Mayor (Alderman Leak), Major Brodriek, J.P., Captain Gurney (Chief Constable), Captain W. S. Brodriek, Messrs. R. Falconer Jameson, W. Hawksworth, F. W. Jameson, R. Collison (Hon. Sec.), R. W. Holder, R. W. Judge, C. Judge, E. Harland, W. W. Cogan, C. H. Collison, E. B. Stather, W. Roper, J. W. Potter, A. W. Stanley (Vice-President), E. Procter, G. Cottam, jun., J. Dixon, E. Goddard, J. Raby, Sherwood, J. Hornsey, and S. Higham. At the conclusion of the repast the usual loyal toasts were proposed and honoured, the Hon. Secs., Messrs. Jameson and Hawksworth, being presented with handsomely illuminated framed addresses. Several other toasts were proposed, and the meeting proved a very satisfactory one to all present.

— MR. W. A. COOK writes from Peterborough:—"I enclose a bloom of a NEW SEEDLING ROSE (NAMED MRS. HOUSE) raised by Mr. House of Eastgate Nurseries, Peterborough. As you will observe, it has all the good qualities of a first-class bloom; it also has a distinct advantage, being as it is very highly scented. It forces well, is very dwarf, though robust constitution. Shall be glad to hear your able opinion of it. I consider it a great treat to have a Rose as Mrs. House in flower now. I do not know one more sweet." The bloom is deliciously fragrant, possessing the scent of the old Provins Cabbage Rose. The petals are broad and smooth, rich rose in colour, faintly suffused with purple.

— THE WEATHER.—"W. K., Blair D. ummond," writes thus:—"After nearly a fortnight of unseasonably fine weather Scotland has been visited by a heavy snowstorm followed by severe frost. The fall began on the night of Wednesday, the 9th inst., and continued till the afternoon of Friday. From different parts of the country even depths of from 8 to 20 inches are reported, and the drift has rendered the roads in some places all but impassable. In South Perthshire the low grounds were covered to the depth of 10 inches. In that district on the night of Friday, the 11th, 16°, and on the following night 18° of frost were registered, with no appearance of change." Around London low temperatures have also been registered. On Sunday and Monday there were 13° of frost in several districts, snow falling at intervals throughout Saturday and heavily on Tuesday. The change appears to have been general, for on the Continent the weather during the past week has been extremely cold.

ROSE-GROWING FOR BEGINNERS.

(Continued from page 187.)

PRUNING CLIMBING ROSES.

MUCH cannot be said on this point, as climbing Roses do not require any pruning, properly speaking. To do justice to these they should be taken down from the walls or trellis to which they are attached. All the wood more than two years old, or at most three years, should then be cut out, or as much of it as is possible, and the remaining shoots replaced in position. If this is not done the tree becomes a tangle of new and old branches, growing so thickly in all directions that the sun and air are kept away, the wood cannot ripen, and poor flowers and puny growths are the results. The whole thus becomes an eyesore, and arrived at this stage, the only plan is to cut it down to the root nearly, and begin again, either with the old plant or a new one.

PRUNING TO PRODUCE A MASS OF FLOWERS.

Some of my readers may wish to have a lot of flowers in preference to individual blooms of greater size and vigour. This is a very easy matter, and is only a question of leaving more buds on the plant to grow and produce blooms. Ripe shoots may be laid down horizontally—in the case of standards bent and tied down—until the buds have fairly broken, when they may be tied up again, or allowed to resume their natural habit. If the ground be suitable the shoots of dwarfs may be pegged down permanently, and during the season fresh shoots will grow up from the base for the next year's blooming, the shoots that have bloomed being cut clean away at the following pruning season. Care should be taken not to bend

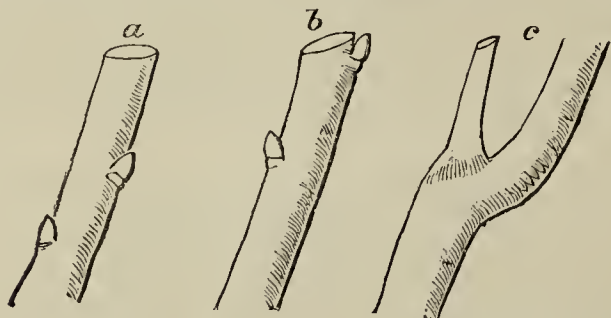


Fig. 38.—a, Shoot badly cut. b, Ditto, well cut. c, Showing results of pruning as at a.

the new shoots down too early in the season, or the frost may injure the young growing buds, most of which would remain dormant—those at the extreme ends of the shoots only growing—if the shoots were allowed to remain upright, until all danger of frost was past. In growing budded or worked Roses on this principle it will be necessary to look out for, and remove, suckers, which will be continually growing up from the stocks. Where an upright bush is preferred, the shoots in pruning may be left as long as individual taste may desire, but if left long, and allowed to remain upright, only the upper buds will break, and a very unsightly plant will be the result.

HOW THE CUTS SHOULD BE MADE.

A few words as to this. I wish to warn the reader that my illustrations are not a guide in this matter, quite the contrary; in fact I have purposely drawn them just as they should not be, so that I may be able, by showing him how he should not do it, the more clearly explain to the reader how it should be done. Figure 38 at a shows a shoot badly pruned; for this reason, there being no bud at the end of the shoot, the sap will not flow as far, it will stop short at the bud, and the result will be that all the wood beyond the bud will shortly perish and leave a snag or piece of dead wood, which is very objectionable, and may introduce decay into the healthy part of the branch. In the same figure, at c, I have endeavoured to show the snag which would be produced the following season. At b I give an example of how a branch should be pruned. If cut down close to the bud the bark will heal over and the wood will remain alive and sound.

DISBUDDING.

This term is applied to two distinct operations—one the removal of wood buds, which, if allowed to remain, would in time develop into shoots or branches—and the other, to the pinching off of the superfluous flowers while they are yet in a very young state.

In the case of the wood buds, which afterwards become branches, I said a little way back that more buds might be left on than might be afterwards required. This might arise from want of judgment; or the beginner might, after pruning, when he saw the buds breaking and beginning to grow on the plant, think that he had left too many; or, which often happens, buds which were not seen at the time of pruning may start out in inconvenient places, as, for

instance, pointing inwards, or towards the centre of the plant; or, as again often happens, two or more buds may break out at the same point. In any of these cases, as soon as possible after the discovery that any of these buds are to be done away with, the beginner should bring his thumb to bear on the subject, and break off, or rub away, the superfluous buds. If there are many to come away, and these have attained any size, or are in full leaf, they should be taken off at intervals, as it is a rule, or should be, that when the sap is flowing, or when plants are in a growing state, which is the same thing, that violent changes should be avoided. The sudden removal of any quantity of shoots or buds, which have been up to then absorbing a certain quantity of sap, must disturb and augment the supply to those remaining. The reason for early removal of these buds is obvious. If they are not to be allowed to come to maturity, what is the use of permitting the plant to waste its energies growing them at all? Off with them, and the sooner the better.

Now as to the pinching off of superfluous flowers. Many varieties produce quite a cluster of flower buds at the ends of the shoots. If these are all allowed to grow, one blooms first, and is followed at intervals by the others; but naturally the blooms, even the first, are not very large. If we want a very large and fine flower we must concentrate the whole of the energies of the plant in one bloom in each cluster—the others must be pinched off. Now if these buds are to be removed, they should be so treated as soon as they are large enough to be discernible by the naked eye. As in the case of wood buds just mentioned, it is very improvident, and a great waste of the energies of the plant, to allow it to grow, and perhaps half mature a bloom which is doomed to destruction from the first. If there be three or four shoots on a plant, and it is desired that the flowers should bloom at intervals, a good plan is to remove the central bud from one or two clusters, leaving only one of the smaller or secondary buds to take its place. This will, as a matter of course, take a longer time to arrive at the blooming stage.

Disbudding is applied to standards with good results, particularly to those varieties which really make good standards; and these varieties, let me say, are not near so numerous as many people imagine. I shall probably give my idea of what a standard Rose tree should be elsewhere, so I will content myself here with saying that I allude now to those varieties which make shoots as long as, or longer than, the ribs of an ordinary sized umbrella, in one season. These would be treated, of course, to produce a mass of flowers; some of the branches cut clean out at the base, and the others left long. The individual flowers would be much improved, and the next season's branches would be much more vigorous, if some of the buds were rubbed away from each shoot; for example, all those that pointed inwards. To get them all to break, the branches should be bent or tied down. If this were carried out, all the buds would break pretty equally and grow with equal vigour, and a fine half-globe-like mass of flowers and foliage would be the result.

In the middle of June 1876 I travelled by road from Chester into North Wales, and I shall never forget the fine effect produced by the standards growing in all the cottage gardens about, or within ten or twelve miles of Chester. They looked exactly as if the shoots had been trained to the framework of an umbrella, and on every side drooped long branches, the whole forming one mass of flowers. Général Jacqueminot seemed to be the greatest favourite; he was to be seen in every garden. But I was particularly struck in one place by a beautiful tree, a Noisette apparently, covered with the most lovely pale yellow flowers—it is a long time ago now, but I think from what I remember it must have been either Madame Caroline Kuster or else Celine Forestier, both excellent for growing in this form; but, alas! for us in this inhospitable part of the kingdom, requiring a greenhouse to grow them. Aimée Vibert, however, for those who desire a cloud of white flowers, is quite hardy, and answers admirably under this treatment.

In this neighbourhood pillar Roses are scarce, but where they do well, disbudding would be a great assistance in getting them into shape. The object being to form a pillar of bloom, free from breaks or gaps, much may be done by removing buds from where there are plenty; and, on the other hand, encouraging those best situated to fill bare places. As I said before, any required bud may be got to break if the branch be laid down horizontally for a short time.—D. GILMOUR, JUN.

(To be continued.)

CYCLAMENS AND THEIR CULTURE.

It is, I believe, a generally admitted fact that these plants are not, as a rule, grown to a very high state of excellence in private gardens. In many cases this is, no doubt, because there is not the convenience to devote houses or pits especially to their cultivation, and in others be-

cause they do not have the attention bestowed upon them that market growers are able to bestow upon them when grown on a large scale and men especially employed in looking after them. When the plants can have such attention, grand specimens are produced in twelve or eighteen months from the time of sowing the seed. By sowing the seed in August and growing the plants steadily throughout the year, they may be had in flower from October to May; but recent experience has taught us that for gardeners generally the best results, compared with the trouble taken, can be obtained by growing on plants that have flowered one season; and although we do not dispute that equally good plants may be produced by sowing the seed annually and throwing the plants away after they have done flowering, as many good cultivators of these popular flowers do, yet we maintain that to accomplish it treble the amount of attention is necessary. Another great advantage of this system of cultivation is, that the very best varieties can be selected and grown, so that we can be always sure of having a good strain to depend on for the main batch of plants, for however reliable may be the source from which seed is obtained, the plants generally require a little weeding out, the most robust specimens often producing quite inferior flowers. Taking these things into consideration, we believe that the most profitable way of growing *Cyclamens* is to sow a little seed in August each year, and select the best varieties when in flower, and after giving them a season of rest grow them again, and continue to do so each year as long as the corms are in a plump and healthy condition, or till they become too large for the purpose required. One of the reasons why disappointment often occurs when old plants are grown, is because corms are potted that are quite worthless, having very few embryo buds to develop into leaves and flowers.

We have at the present time many fine plants in flower, some from seed sown in 1885 in 5 and 6-inch pots, carrying between thirty and forty fully expanded flowers, with numerous buds to form a succession. Yet the treatment given them has been simplicity itself, and I thought a few remarks concerning it might be of service to those who have not been so successful as they would wish in growing these plants. After flowering our stock is placed together in a frame, and water gradually withheld till the corms are thoroughly ripened. The pots are then turned on their sides and the plants kept for three or four weeks without water, when they are again stood upright and receive a thorough soaking, which causes them in a short time to start into growth. As soon as the young leaves, or rather the stalks, are a quarter of an inch in length the corms are shaken out, the roots shortened, and repotted in soil consisting of two parts turfy loam, one part leaf mould, and one part well decayed manure, which has previously been exposed to the air to sweeten (ours was obtained from a Vine border which had been heavily dressed in the spring), with enough sand and finely broken charcoal to keep the compost open. In potting the corms were buried about half their depth, and the soil pressed about them moderately firm. They were then returned to a cold pit, where they stood on a firm surface of ashes, were kept close and shaded for a few days, and afterwards gradually inured to the light and air till the lights were left off altogether, except during heavy rains. The night dews seemed to have a very beneficial effect upon them. When the nights were cold the lights were placed on, and by the end of September they were removed to shelves in a light span-roofed house, where the temperature ranged between 45° and 60°, according to the weather, a fair amount of air being given on all favourable occasions, and the floor of the house damped once a day in bright weather. When the roots had worked well into the soil weak farm-yard manure water was given at each watering, and occasionally a little soot water mixed with it. As the flowers began to open the plants were removed to the conservatory (which was kept at about the same temperature as the house in which they had been wintered), where they are now, rewarding us with a fine display of richly coloured flowers. H. DUNKIN.



PHAIUS TUBERCULOSUS, var. SUPERBUS.

ORCHIDS that are difficult to import and difficult to cultivate are often well known to botanists for a considerable time before horticulturists generally have an opportunity of making their acquaintance. An example of this is afforded by *Phaius tuberculosus*, which under various names had been described by botanical writers long before living plants were introduced to this country. The name now adopted was bestowed upon the species by Blume, but Du Petit Thouars gives it as *Limodorum tuberculosum*, and Sprengel as *Bletia tuberculosum*. Some seven or eight years ago it was found by the collector Humblot, and plants were successfully introduced to this country to pass into the possession of the leading orchidists. Sir Trevor Lawrence, Bart., flowered one of these in the Burford Lodge collection early in 1881, and the plant, when exhibited at the Royal Horticultural Society's meeting, March 8th of that year, had two spikes, one with four and the other with six flowers. The contrast between the lip and the pure white sepals is most remarkable, and this *Phaius* became one of the notabilities of the year.

Baron Schröder also flowered a good variety at The Dell, Egham, which is excellently figured in Williams' "Orchid Album," vol. ii., plate 91, and Mr. Sillem of Sydenham obtained a variety remarkable for the size and bright colour of the flowers. The finest variety that has yet been seen is, however, that represented in fig. 39, p. 215, *P. tuberculosus*, var. *superbus*, which has recently flowered at Burford Lodge, and was shown at South Kensington on the 8th inst., when a cultural commendation was awarded for it. In most of the varieties that first attracted attention the flowers rarely exceeded 2 inches in diameter; in this they are over 3 inches from tip to tip of the petals. The lip is also larger and much richer in colour, the peculiar veining or spotting in the throat and side lobes, is of an intensely rich maroon, whereas it is usually of a reddish orange hue. The prominent crest in the centre of the lip is bright orange, the undulated margin being purplish, and separated from the crest by a pure white irregular band. The flowers have a singularly bold handsome appearance, and the plant under notice had a strong spike of six flowers with several plicate leaves, like many other forms of the genus, but rather shorter than those of *P. tuberculosus* are usually. It is grown in a pot in the Acrids house, as, being a native of Madagascar, it requires a high temperature and a moist atmosphere, somewhat the same conditions as *Angraecum sesquipedale* from the same island. Sir Trevor Lawrence has been fortunate in obtaining this beautiful variety for placing amongst the numerous treasures contained in his valuable collection.—LEWIS CASTLE.

ORCHIDS AT HOWICK HOUSE NEAR PRESTON.

VERY few, I imagine, have had the opportunity of seeing such a rich display of *Cattleya Trianae* as was afforded me a few days ago. I was astonished when my hospitable guide, Mr. Swan, showed me into a house where no less than 270 or 280 flowers of the lovely *Cattleya Trianae* and its varieties were expanded. Many varieties are included, of all shades, including the lovely *C. Trianae alba*, a fine healthy piece, with a pair of its lovely and pure white flowers. Several plants of *Cattleya Percivaliana* and *C. Mendelli* were gay, also *C. amethystoglossa*, a very distinct and beautiful species. In the same house were noticed two or three good baskets of each of the following *Dendrobiums*—*D. crassinode*, rich, and a mass of flower, *D. heterocarpum*, *D. nobile*, and the beautiful *D. Ainsworthi*.

In a second division suspended from the roof were some well-grown *Phalænopsis*. The most noteworthy is a piece of *P. Schilleriana* with a splendid branched raceme bearing thirty flowers. *P. Stuartiana*, *P. violacea*, *P. anabilis*, *P. Sanderiana*, and *P. grandiflora* are all represented. In a third house, among numerous examples of *Cattleya Mossiae* and other species, are several baskets of the orange-coloured *Lælia cinnabarina*, well flowered, also *Lælia harpophylla*. The last-named resembles the former, except that the lip is of a much lighter shade. *Cœlogyne cristata* is well grown here; several very large pans have yielded a real harvest of flowers, but the lovely *Cœlogyne*, *C. Lemoniana*, was a little in the rear. Some four or five pans were flowering profusely, each raceme bearing from five to eight flowers, a number rarely seen upon the old variety. The lip is of a soft lemon yellow tint quite distinct from the former. A house is filled with most healthy *Odontoglossums* bearing a host of strong flower spikes. About 120 fine racemes of the following were noticed—*O. Alexandræ*, *O. Andersonianum*, *O. gloriosum*, and *O. Pescatorei*; *Oncidium macranthum*, several having racemes 5 and 6 feet long trained neatly to stakes.

Leaving the Orchid houses, we cannot help noticing that all kinds of florist and other plants have their various cultural requirements supplied with the same judgment. *Cyclamens* fill one side of a span-roofed house, and are in themselves a complete show. One plant is nearly a yard in diameter, and many others are from 15 to 18 inches across. In the same house are well-grown *Cinerarias*. Tea Roses have a good share of attention, filling one side of a house in 10-inch pots, tied neatly to stakes, and forming good bushes down to the rims. Last, but by no means the least interesting feature, is a neat little conservatory adjoining the mansion, and within is a tastefully arranged bank of Hyacinths, Tulips, and Narcissus, with Primulas, Cyclamen, Lily of the Valley, &c., backed up with a row of *Acacia lophantha* and *Aspidistra lurida variegata*, which gave to the whole a very pleasing effect. The Hyacinths are splendidly grown, and are represented by many excellent sorts too numerous to name. They are chiefly grown in self-colours, three bulbs in each pot, a system that should be more generally adopted where good effect is the object, no sticks or ties being employed. Narcissus and Tulips are equally well grown. But space and time are short, I must therefore close my notes, feeling that a most profitable hour had been spent.—VISITOR.

PRESERVING FLOWERS FROM SLUGS.

YOUR correspondent, Mr. Murphy, draws attention to the slugs "destroying and disfiguring his flowers," and this is by no means an exception, for not only are they troublesome and destructive with the outdoor flowers, but more especially when they attack the flowers in houses, for I have been troubled with them amongst the Orchids. They commenced their operation upon *Dendrobium nobile*, which they seem particularly fond of. It is most provoking indeed, as your correspondent states, to find the flowers disfigured, and in my case some of the buds cut off. To prevent further mischief I procured some Potatoes and cut them in half, removing some of the inner portion, thus forming a kind of shell. I then cut a hole V shape in each piece, this being to allow the enemy free passage into the trap. Place the traps amongst the plants,

and when going round in the evening examine them, and upon lifting he traps the enemy will be found. By this simple method I have been able to get rid of a very troublesome pest.—R. KIRBY, *Hammerwood*.

ORCHIDS AT WESTBROOK, SHEFFIELD.

CALLING a few days since at Westbrook, Sheffield, the residence of A. Wilson, Esq., we saw a truly grand display of Orchids in flower, the flowering house being filled throughout with a forest of flower spikes, consisting for the most part of *Odontoglossums*, *Lælias*, *Cattleyas*, and *Dendrobiums*, and amongst them many very rare and choice varieties. Mr. Wilson is fast improving his already valuable collection by purchasing at great cost freely and continuously the best varieties of each section to be met with, and weeding out the less valuable, so that the Westbrook collection bids fair to soon become one of the best in the provinces. The plants throughout are in the most robust and vigorous health, showing that their treatment is thoroughly understood by Mr. Pidsley, the head gardener. Appended is a list of those in flower at the time of my visit.—W. K. W.

<i>Angræcum articulatum</i>	<i>Odontoglossum crispum</i> (many very fine forms; one plant with two heads, two spikes to each head, carrying forty-three flowers—a very fine variety. Other fine varieties carrying from ten to sixteen large flowers on single spikes)
<i>Acetochilus Dawsoni</i> (very fine)	" <i>luteo-purpureum</i> triumphans
<i>Cymbidium Lowianum</i> (five spikes, carrying 60 flowers)	" <i>Halli leucoglossum</i> maculatum superbum
" <i>eburneum</i>	" <i>circosum</i>
<i>Dendrobium nobile</i>	" <i>cordatum</i>
" <i>Ainsworthi roseum</i>	" <i>pulchellum majus</i>
" <i>Wardianum</i>	" <i>Cervantesi</i>
" <i>caudatum</i>	" <i>Pescatorei</i>
" <i>primulinum</i>	" <i>gloriosum</i> odoratum
<i>Cattleya Trianae</i> (several very fine forms, amongst them a pure white-flowered variety).	" <i>Tricopilia suavis</i>
<i>Cypripedium Harrisianum</i>	" <i>Phalaenopsis amabilis</i>
" <i>hirsutissimum</i>	" <i>Schilleriana</i>
" <i>villosum</i>	" <i>Luddemaiana</i> (fine var)
" <i>Rozei</i>	<i>Vanda suavis</i>
<i>Lycaste Skinneri alba</i>	" <i>Veitchi</i>
<i>Masdevallia triangularis</i>	
" <i>Lindeni superba</i>	
" <i>Shuttleworthi</i>	
" <i>igneae</i>	
<i>Oncidium Forbesi</i>	
" <i>cucullatum</i>	
<i>Lælia harpophylla</i>	
<i>Odontoglossum Andersonianum</i> (one pseudo-bulb with two spikes, carrying thirty-three flowers)	
<i>Odontoglossum hybridum</i>	

CULTURE OF DENDROBIUM NOBILE.

MR. THOMAS TODMAN (Messrs. T. Todman & Son), Rose Park Nursery, Tooting Beck Road, recently read a brief but excellent paper before the Tooting Horticultural Society upon the cultivation of this useful Orchid, the chief points of which are condensed in the following note:—

Commencing with the propagation, Mr. Todman stated that when it is desired to increase the stock largely plants that will not flower should be placed in strong heat. Growths will soon be produced, and these should be taken off when 3 inches long with a portion of the old pseudo-bulb and a few roots if possible, though roots will form quickly in a warm moist house. Break some old bricks into small pieces, and mix some good peat and sphagnum moss together, half fill large 60-size pots with the broken bricks, over that place some sphagnum, and on that three of the young plants or growths, filling up with peat and moss pressed firmly. Arrange them in a Cucumber house or stove where they can be exposed to the sun when necessary, supplying plenty of water, as they must never be allowed to become checked at this stage. The growth will be finished by September, and if they make 1 foot of growth the first year it will be satisfactory. They can be partly dried and placed in a temperature not lower than 45° in winter, but do not let them shrivel. In February they can be placed in 48-sized pots, using the same compost as before. Grow the plants in a Cucumber house or vinery as quickly as possible. Give plenty of water, and with sun heat a temperature of 90° to 100° will not hurt them. Liquid manure sprinkled about the house is very beneficial to them. Treat them during winter as before, and if in the following February any of them show flower buds, place them in a forcing house. In potting the large plants we use rough peat and pieces of bricks.

In regard to pruning *Dendrobium nobile*, I should not attempt it with young plants unless the pseudo-bulbs were half dead. From plants above six years old all old pseudo-bulbs can be cleared off, but they should not be cut away before the new growths are 1 foot long, or it will weaken the plants.

SYRINGING ORCHIDS.

TEMPERATURE may be all that can be desired, watering, potting, and shading carried out with the most scrupulous care, yet these are rendered futile by a careless use of the syringe. Some cultivators contend that the syringe is a dangerous instrument amongst Orchids, and such is the case when used in a reckless manner; but with judgment it can be used as beneficially amongst Orchids as other plants. It has

been urged again and again that water should not be allowed to lodge or enter the young growths of *Odontoglossums*, *Cattleyas*, and others, for they are liable to damp under these circumstances. This must before long become obsolete, for it prevents timid persons using the syringe, whereas when the young growths decay the cause must be attributed to the method of ventilation. Water in the centre of a young growth in a confined stagnant atmosphere is certain to decay. The decay of the young growths may, in the majority of cases, be traced either to too low a temperature or a saturated stagnant atmosphere about the plants, and the syringe may be safely used provided a judicious system of ventilation is practised.

Some of those who condemn the use of the syringe ventilate liberally, and maintain low night temperatures about their plants. They contend that by so doing they are following natural laws, and that the plants need no syringing in the morning because they are covered with moisture in the form of dew, the same as may frequently be observed outside. This is true, and any plant by a natural system of cooling, even in a glass house if the temperature is allowed to fall sufficiently, can have its foliage laden with water in the morning. But whether this is the best course to pursue is an open question. I have tried this natural dewing system, and by no means approve of it, for under these conditions young growths will decay if water becomes deposited in them. If we take *Vandas*, *Aerides*, *Saccolabiums*, *Phalaenopsis*, and other similar plants grown in the plant stove or Orchid house, the temperature, by this natural deposit of moisture on the foliage, is too low for sustaining the plants in health. Orchids in our houses are subjected to entirely artificial treatment, and to follow Nature in this one particular is simply absurd. If *Cattleyas*, and others that will grow in the same house with them, are subjected to the same treatment they, too, are starved. The cool or *Odontoglossum* house during the summer months, or say from the end of May until the end of September, where no artificial heat is employed, cool sufficiently each night for the plants to become covered with moisture in the morning. The temperature, however, appears to be warm enough for these plants, and, therefore, no harm results. The dew deposited upon the leaves is very rapidly absorbed by the atmosphere directly the temperature rises. This leaves the stems and foliage of the plants perfectly dry from early in the day until moisture is again deposited on their foliage during the night. This may be natural, but our province is to improve on Nature if possible by giving the plants all the advantages they would derive in a natural state, and at the same time shield them from trying conditions. By the non-syringing system the transpiration of water from the foliage is going on over a greater portion of the day than would be the case if they were liberally syringed morning and afternoon.

From the end of October until the end of March, or later, according to the weather, we never ventilate the houses in which Orchids are grown, except the one devoted to *Odontoglossums*, and therefore never syringe during that period, unless it is on the morning of very bright days during March; if the last month is excluded we never syringe the foliage during any of the others, but maintain the requisite amount of moisture by damping the stages, floors, and amongst the pots. On bright mornings the syringe is used, and again very lightly at one o'clock. This gives ample time for all the moisture to be evaporated from the foliage before night. As the season advances we syringe more freely, and frequently water lodges in the young growths of *Cattleyas* and others; in fact, we never trouble about this, but are careful that the water is evaporated before night. Some days the syringe can only be used once when the day proves dull some hours after syringing, but on particularly bright days it is done three times. A little ventilation after syringing is afforded at the top, and the water from the young growths is quickly evaporated, at least some hours afterwards. The whole of the plants in the cool house are syringed twice on every fine day after they are potted or top-dressed, and a little ventilation given at the top. During the whole of the summer the plants are watered over the foliage.

Those who have low temperatures generally in their Orchid houses must exercise greater care in the supply of water both in the atmosphere and over the plants than those who subject their plants to warmer treatment. Spot in the foliage has been attributable to a variety of causes, but the chief one is a too free use of the syringe combined with too low a temperature. The young growths of *Lælias*, *Cattleyas*, *Oncidiums*, and others are then very liable to decay, and in the case of *Odontoglossums* the old pseudo-bulbs will decay as well. I have tested the low temperature system for these plants, and with the syringe discontinued, and the amount of moisture decreased as much as possible, the pseudo-bulbs decayed of *O. cirrhosum*, *O. roscum*, *Mesospidium sanguineum*, *Ada aurantiaca*, and others even at the warmest end of the house. Do what we would the amount of moisture in the atmosphere, combined with the low temperature, proved too much for the plants. *O. triumphans* flourished under the cool treatment, while *O. Alexandræ* and *O. Pescatorei* went back so far that two years was required before they were again in a satisfactory condition. With a low night temperature the use of the syringe may well be condemned, but with warmer treatment the syringe may safely be used with advantage. If low temperatures are considered from an economical point of view they have nothing to recommend them, for the loss of plants or the slow rate at which they increase or develop in comparison to those grown warmer would, I am afraid, show a balance on the wrong side.

Yellow thrips are often troublesome throughout the various houses devoted to Orchids, but if the syringe is freely used they will give but little trouble. If the plants are clean, whether they are *Vandas*, *Aerides*.

Cattleyas, Lælias, or Odontoglossums, they may be kept clean by syringing them twice daily. With us this insect was most troublesome until we practised a liberal system of syringing and careful ventilation, and since then—that is, for the past five or six years—we have never been troubled with it. From the present time plants may be lightly syringed

about 14 inches high, and has seven main roots, some of which hang nearly 4 feet below the basket, and measure in all over 50 feet. *A. Lobbi* has rooted equally as free, but the roots work more about the basket, and cling to the charcoal and sides very firmly. *Saccolabium ampullaceum* has rooted equally as free as *A. virens* according to its size



Fig. 39.—*PHAIUS TUBEROSUS*, VAR. *SUPERBUS* (see page 213).

over the foliage daily, while it may be used liberally in the *Odontoglossum* house twice on bright days; on dull or wet ones the houses should only be damped. In short, never syringe on such days that air cannot be admitted at the top of the house.

To show how these plants flourish and root under the free use of the syringe, a plant of *Acrides virens* may be given as an example. It is growing in an 8-inch basket filled with charcoal and crocks, with a little moss on the surface and round the sides to maintain moisture about the plant, not its roots, for they are all out of the basket. The plant is

of growth. *Oncidium lanceanum* had a mass of roots 2' to 3 feet below the basket, but this unfortunately fell from the roof, and the majority of the roots were destroyed, but many of them are again nearly 2 feet in length. These are only given as examples of the manner in which Orchids root under the syringing system. The plants alluded to have been more or less syringed all the year, for they are growing in the stove suspended with *Crotons* and other plants. The water used for syringing should always be warmer than the temperature of the house, or spot and other injurious results may follow.—A NORTHERNER.

LEEKs.

At this time of year we use a good number of Leeks, especially when the Onion supply runs short, for which the Leek makes a very fair substitute. In England the qualities which have commended the Leek to the favourable notice of all classes in Scotland do not appear to have been as yet appreciated, though signs are not wanting that some interest is being taken in this vegetable. The varieties are increasing, and at least one of the large English seed firms have their name affixed to one of these novelties. Like many others, I have tried and found that all the varieties which find their way into commerce are not to be depended on as acquisitions. Only last season I saw the Musselburgh in a keen competition awarded the first place. This, if obtained true, is a good sort of dwarf habit, if such a term may be applied in this case, while it has the advantage of continuing to increase in size through the winter months in favourable weather. The Lyon, raised and grown for many years by one of the amateur growers of the classic village of Yetholm, and brought into notice by an enterprising firm of Scotch seedsmen, is an exceedingly distinct sort, blanching rapidly, and with a naturally long stem. For early shows on account of this feature it is of great value.

Growers for competition sow under glass, so that as long a season of growth as possible may be obtained. The habit of growth of the Leek makes this of importance, as the greater number of leaves the plant produces the thicker and longer will be the portion blanched. Of course, treated as above the plants are rendered more liable to throw up flower stems, a probability which has the effect of causing careful judges to run a knife from top to bottom of at least one specimen in each lot when awarding prizes. Inexperienced hands occasionally mistake a hardness at the top of the blanched portion of the Leek for an embryo flower head, and at once decide the case against such. But it does not always follow that such Leeks "run" at all, hence the advisability of dissection as a means of arriving at a fair decision.

The treatment best fitted for Leeks raised early consists above all in not allowing the plants to suffer a check. Open rich soil should be used for potting. Firm potting is not advisable, and too early planting out is not good for the plants. The soil in which the Leeks are finally planted can hardly be too much enriched. Watering has to be carefully undertaken, as it is very easy to over-saturate soil which is heavily manured. At the same time an occasional watering is very necessary to keep the plants growing without check from over-dryness. Growers in this district place a framework of rough boards round their Leek trench. The boards serve the double purpose of keeping the soil up round the blanched stems, and water when required is easily applied to the roots from underneath the planks. Leeks for ordinary purposes are raised in beds, the seeds being sown in February or March, light open soil with a little decayed manure about 6 inches below the surface making a bed in which the plants make good progress.

In June they are ready to be planted out. The ground on which they are to be grown having been previously prepared by digging a thick coating of manure in at a depth of 10 to 12 inches, so that the roots of the young plants may have food ready just when wanted, drills are drawn deeply at a foot apart, and deep holes are made with a long dibber at every 6 to 9 inches in the drills. Into each hole a plant is dropped, a little soil following the roots, and thereafter a small quantity of water is given to each Leek, and the planting is finished. Dull weather is much the best for this work. The after work consists in hoeing between the rows occasionally, this operation increasing the depth of the stem to be blanched. Another method of planting is to draw drills so as to form furrows with ridges between each. The plants are dibbled into the furrows, and by-and-by are earthed up, first by levelling the soil, and later by drawing more soil up to the stems of the Leeks so that the furrows are between the rows of plants, and the Leeks are growing in what appear to be ridges. This has no advantage over the first method, and has the drawback of entailing more labour, while in dry weather the roots of the plants are much nearer the surface than are those which are let deeply into the soil.—B.

THOUGHTS ON CURRENT TOPICS.

AFTER a tolerably long rest I am impelled to make another venture for publicity, for I have lived long enough to know that writing for the press is a venture, and that everything is not printed that is sent to the Editors of papers with that object. For some of my thoughts there has been "no room," at least I will take that as the reason they have not seen the light; they are now out of date, and I will try again.

I HAD almost begun to think hard thoughts of the florists when no response was made to my gentle invitation for a few shillings to increase the funds of the National Carnation Society, but it is not wise to judge hastily in moments of disappointment. Every effect has its cause, is an old axiom, but in this case I had "no effects;" yet what I assume to

be the cause of that came by waiting a month. I find on page 153 the active officials of the Floral Societies had been appealing, and as a consequence were able to state that as an expression of loyalty during the Jubilee Year "in several instances subscribers have intimated their intentions of doubling the amount of their subscriptions." That, no doubt, is the reason why no one forwarded me a cent, and I shall also conclude that the 5s. I thought of giving is not needed, and on "second thoughts" shall apply it to another purpose.

I ONCE heard a gardener tell some brother blue aprons he liked to see that "Thinker" in the Journal pushed into a corner, as it was "such a 'treat' to see him wriggle out of it." He went on to say "they pin him closer and closer, get him down and bind him till he ought to be fast; then he just, by a twist of the pen, turns all the arguments that have been used against him to his own account, and there he is on his feet again thanking them for helping him out of his difficulty." I felt rather flattered, and I wonder what the narrator of the little story will think when he finds he had the object of his admiration in his audience. One thing, however, is clear, he will not alter his opinion of my method of retirement from a position from which I feel "officially" relieved.

GREAT subjects have been brought under notice during my short vacation. The most prominent appears to be a somewhat general fishing for money with the Jubilee bait. The year is worthy of commemoration, and no doubt all the objects advanced as an embodiment of public expression are good, but I have a lurking fear that with so many in the market dividing attention, very few of them will be adequately supported.

THE Royal Horticultural Society is brought to the front as a claimant for support and reformation. But that is nothing new. If half were true that has been written about the Society for years past it would have been dead long ago. It is like the British Parliament, a very useful institution—for critics. It would, perhaps, be as well to let it rest for awhile. If it has not such a "home" as could be wished it has a very good present habitation, which, I believe, is rent free, and surely that is cheap enough. So many schemes, and plans, and advisers are a little bewildering. With a firm representative Council and a settled policy strength will be gradually acquired. The Society is located for this season at least, and I shall not think much of the "loyalty" of horticulturists, trade and otherwise, if they let the year pass without a concerted effort to do something worthy of the nation, of the Society, and of themselves at South Kensington.

ALL other Jubilee projects in connection with horticulture may be passed, except Mr. Penny's Gardeners' Orphanage proposition. None other has gained a hearing, and this will collapse if it does not soon get beyond the field of fitful discussion. Like many another project it can easily be "discussed" till there is nothing left.

SOMETHING much more definite than a floating idea is requisite before any considerable number of persons will part with their money. Granted that the object in view is the purchase of land and the erection of a building thereon, with garden attached, as a home and a school for the orphans of gardeners, what the public want to know who approve of such a laudable scheme, is this: Supposing that not half or a quarter of the requisite sum should be collected, what is to be done with the money? Until that point is settled even a satisfactory commencement cannot be made in acquiring funds. A few guineas and five-pound notes may come dribbling in, but they will only show with greater clearness the weakness of the position.

If sympathy and good wishes could provide a "home" for friendless and helpless children it would quickly be an accomplished fact. But I suspect the best friends of this project will not be the sanguine optimists who think that all the gardeners in the kingdom and their employers will rush money into a common fund in response to a few letters in the papers, after the manner of applicants in a great beer "boom." They will do nothing of the kind, and I fear the poor orphans will not benefit much unless there is a distinct change from the present method of procedure. As a £5 gardener suggested on page 166, there must be a "definite scheme," and in formulating this, regard must not be had to what is desirable only, but to what is practicable.

ARE not the most practical suggestions conveyed in the letters of Messrs. Goodacre and Thomson? Would it not be advisable for the promoters of the Orphanage scheme to seek the co-operation of the Gardeners' Royal Benevolent Institution in carrying out their project? An orphans' or children's fund in connection with that valuable institution would be appropriate and workable; that is to say, a substantial fund raised for the benefit of gardeners' orphans would be more economically distributed, and immediately applied to its direct object, than if invested in bricks and mortar. In a great "separate home" scheme, even if the money were forthcoming, some rich or lucky builder might easily "net" as much of the fund as would support half a dozen children.

It is in the earnest hope that something may be done: that shall be of substantial benefit to the helpless, whom all persons desire to assist, that I have turned these matters over in my mind and record my

thoughts on the subject. Time is flying, the Jubilee Day is approaching, and I am afraid there will ere long be a general evaporating of generous sentiment. If good is to result from the Orphanage proposition a direct appeal must be made on a clear basis to every person likely to subscribe, this appeal emanating from an established organisation of representative men conducting it on business principles, and the gardening press will, no doubt, help on the good work.

GARDENERS never appear to tire with writing about Grapes, and nothing appears to suit them better than a smart "paper fight" over the relative weight, size, and merits of varieties. Messrs. Taylor, Castle, Barker, and Jenkins have written well on their favourite theme. Mr. Jenkins thinks Mr. Castle's experience as to the superiority of Alnwick Seedling over the Black Hamburgh in October is "unique." I am not sure that it is. I have tasted, with other gardeners, well grown and ripened "Alnwick" in October, with Hamburghs of the same grower, and the palm was accorded to the former. Mr. Castle is not very clear when writing in the issue of January 27th, as to the date to which he alludes when he says, "I question very much whether the equal of Alnwick Seedling is to be found at this date." As he had just been writing of its excellence in October he perhaps meant that date. If that is so, well grown examples of Madresfield Court are, I think, in the estimation of most persons, much superior in flavour.

I WAS much more astonished by Mr. Castle's high praise of the Alicante as to flavour, even in July. Judging it by quality alone I consider it inferior to every black Grape in general cultivation. Growing for "appearance" or for market is another matter, about which Mr. Castle is entitled to speak with authority.

GRAPES vary greatly in flavour in differing soils and conditions of culture. At the present moment I know of some good looking Gros Colmans that are not far removed from being "nasty," and of some others that are almost what may be termed excellent. Your correspondent says, "The better this Grape is grown the better the flavour." True; so is the Black Hamburgh, and when the old favourite is produced in its best condition the fruit is a long way in advance of imperfectly grown examples; but the difference in quality may be no fault of the gardener. Of two very competent Grape growers one fails in producing well flavoured Black Hamburghs, and the other equally fails with Gros Colmans, and I suspect if they were to change places the quality of the varieties would remain practically the same.

THERE is also a great difference in varieties of the Hamburgh. In a vineyard that could be named are two Black Hamburghs growing side by side. There is no difference in the appearance of the Grapes, but those from one Vine are not worth eating in comparison with fruit from the other. If Mr. Castle should happen to have soil unsuited for this variety, and at the same time an essentially flavourless form, his remarks on the relative superiority of the Alicante can be understood. In support of his observations on the skins of Grapes affecting the flavour, it may be stated that the superior variety above alluded to has a decidedly thicker skin than the other has that is so distinctly inferior.

JUST a thought on the experiments with chemical manures referred to in the Home Farm article on page 204. It is this: If the intelligent use of these manures were general throughout the land, and entirely devoted to the sustenance of food crops, not weeds, the condition of agriculturists and landowners would soon show improvement; indeed, "depression" would in a very few years be supplanted by prosperity. Let the same mixture that answered so well for Barley be applied to Potatoes, but diminishing the nitrate of soda by a hundredweight and increasing the potash correspondingly, and they will find the investment profitable. Concentrated or chemical manures might also be used much more extensively in gardens, where farmyard manure is scarce, with great advantage to all kinds of crops.

NITRATE of soda is the quickest of all fertilisers, but it is liable to adulteration with common salt. It should be purchased under a guarantee of 5 per cent. refraction, which means 95 per cent. of pure nitrate of soda. For cold wet soils sulphate of ammonia, though a little less quick in action, is preferable, for it is in the nature of the nitrate to make such land still colder and wetter, and this is not desirable; moreover, sulphate of ammonia is more lasting in its effects, containing about 5 per cent. more nitrogen. It is open to adulteration with sulphate of magnesia (Epsom salts), and should be purchased under a guarantee that it contains 24 per cent. of ammonia. A simple method of testing the purity of sulphate of ammonia is to spread some on a nearly red-hot shovel, and if the manure entirely disappears it will not be far from genuine. It is a great friend to the gardener when rightly used, but incautiously applied or abused it is like fire, dangerous. It has spoiled hundreds of Chrysanthemums that it might have benefited, for there are many so-called gardeners who do not read for self-improvement, and ignorance usually makes men venturesome. Another rest will now be taken, and neither Editor nor readers will be troubled again this month by—A THINKER.

AN ADDRESS ON FRUIT-GROWING.

IN connection with the first exhibition and conference recently held at Chester the following excellent and suggestive address was delivered by Mr. E. J. Baillie, F.L.S. The exhibition was large, representative

collections of Apples and Pears being arranged by Messrs. F. & A. Dickson & Sons, T. Rivers & Son, G. Bunyard & Co., and by several local growers.

Mr. Baillie, in the course of his address, remarked that it seemed needful to say a word or two as to the purpose of that meeting. The idea originated with their Chairman, and the desire was to see how far British-grown hardy fruit was obtainable so late in the season. Secondly, they wanted to arouse an interest locally in a question of such national importance; and thirdly, they wanted to convince the outside public that their institution was not a castle of an idea, but that while it was a school for the arts and sciences, it could very appropriately and properly be devoted to the economies of life and health. In the abstract of agricultural returns published by the Government in 1883 he found that 190,000 acres of land were returned under the head of orchards. At the first blush that struck one as a wide area. But when he stated that in England alone the same return gave 68,000 acres as devoted to the cultivation of Hops, it would be found that Hop cultivation actually took up more than a third of the area given to British fruit-growing. The total area of Great Britain was 56,786,199 acres, therefore only 1 acre in 300 was devoted to the cultivation of fruit. The population was 35,000,000, and it would be found if the land were to be distributed amongst them, each person would be the happy possessor, or rather unhappy possessor, of about 20 yards of land from whence to obtain his fruit supply. Another feature was, that we were paying £7,000,000 annually for the importation of hardy fruits, or equal to 4s. per head per annum of the population for foreign fruits.

A feature that he thought ought to be remembered was that fruit of some kind or other could be grown almost here, anywhere, and everywhere. But though in Cheshire they had not the warm sunshine of Kent and Hereford, fruit growers ought not to be discouraged, for though of course a great deal depended on the climate, much more might be done by cultivation. That the wonderful collection of fruit sent by Mr. Pochin was an evidence of what could be effected in Denbighshire; and if, as Mr. Pochin wrote and said, his finest fruit was gone from the collection, they might judge of the general excellence from what remained. He contended that in our own immediate district we had but too frequently the typical farmers' orchard; the too generally neglected orchard, with trees which were venerable specimens of antiquity, covered with lichen and other parasites, constituting them the happy hunting grounds of the cryptogamic botanist, but with no assurance of fruit crops. Having dealt cursorily with the question of cultivation, which he held to be a most potent element for successful fruit-growing, the lecturer referred to the distribution of fruit, observing there were difficulties enough, and it seemed monstrous that America could afford to pay higher rates of wages for cultivating, picking, and gathering fruit sent 3000 or 4000 miles to a profitable market, whilst tons of fruit grown on British soil were almost lost, while depression was sounding in our ears. One of the great difficulties of this question was without doubt that of railway rates and charges. He dealt very tersely and pungently with this part of the subject, also with the question of the middlemen's muletings before the fruit reached the consumer, quoting examples, as for instance where a gentleman complained of being charged 5s. 6d. per basket as carriage from Kent to London, whilst the cost of carriage from New York to London for the same article was but 9d.; and many others. The question of remedial suggestions, however, was an awkward matter. First, he thought, the people must be educated to an increased demand for fruit to be grown locally, doing away with railway rates, and the various temperance organisations might do much to undertake the work through the ladies of their respective bodies. He advocated the establishment of fruit fairs, with exhibitions and conferences on the subject, and interchanges of ideas.

With regard to the storage of fruit, he noticed that in one of the collections in the building were some very beautiful specimens of fruit said to have been stored in "hoggs," in the same manner as Potatoes; but whether that method could be carried out to advantage was open to trial; certainly the specimens on exhibition had as beautifully fresh appearance as when newly gathered. So, too, there was another lot said to have been gathered in the autumn of 1885. They were not particularly brilliant specimens, but being gathered so long ago it was not to be wondered at. Yet if Apples could be kept from 1885 till that time the question of fruit preservation was open to be still further considered. Then came the question, What could they do? He thought it might be suggested that Chester should try to establish a fruit fair; and if the outcome of the conference should be to form a small committee to make a recommendation to the Council or some other body on that subject they would have done some good. It was a question claiming the attention of Chester and the neighbourhood. A great deal had been said as to whether it was really wise to go on promulgating the subject, but it seemed to him that there was no room to question it; as long as we went on paying millions of pounds annually for foreign-grown fruit which might just as well be grown at home it seemed to him the question ought not to be asked. He asked, what better prospect could there be for cultivators of the soil than that of hardy fruit-growing? Taking the aspects of the last few years for Tomatoes, Mushrooms, and other things, the demand for which had alarmingly increased, he thought there ought to be a largely increased demand for British fruits. It had been said that the climate of this country was against fruit-growing, but he asked where could be the climatic difficulty in face of the "gluts" of fruit we had had during the last few years? In conclusion, the lecturer alluded to several letters that had been received from gentlemen, some complaining of non-success in the matter of fruit-growing, another

suggesting a fruit show might well be held in connection with a Chrysanthemum show in November; and yet another, who stated that from observation he thought the reason why American growers were able to outstrip English producers was because, while in England the trees in the bulk of the orchards were old and worn-out, the Americans had younger trees in full bearing, and a greater variety and better sorts of Apples. Then came the question of what the tenants could do without long leases. The landlords should see to the utility and value of their property by planting orchards themselves on their farms. The concluding remark evoked a marked expression of applause.—(*Chester Observer.*)

THE IXORA.

[A paper read by Mr. A. R. Cox, Elm Hall Gardens, Wavertree, before the Liverpool Horticultural Association.]

(Continued from page 196.)

WATERING.

In all classes of choice plants it is well known to the thoughtful cultivator that great importance is attached to the application of water to the roots; and to few does this more apply than to Ixoras. This is a subject which should be studied by young gardeners, perhaps more than any other. When to water a plant must, to a great extent, be left to the operator on the spot; the time when most injury is done in its application is after the plants have been repotted and the roots have not taken possession of the soil. When in this condition the utmost forethought must be exercised, otherwise the future well-being of the plants will be questionable. Close observation and study of the real wants of the plants is the best guide to the operator. A plant may not be necessarily dry at the roots, when the surface soil may be even dust dry. I know of no better test than the old method of ringing the pots with the knuckles; experience will soon teach by the hollow sound produced when to apply water. This should always be used about 5° warmer than the temperature in which the plants are growing. When really needed water should not be applied in a half-hearted manner, but fill up the pot two or three times, so that every particle of soil is moistened. In the heat of summer, when the plants are in the full vigour of growth and the pots well filled with healthy roots, the Ixora is a truly moisture-loving plant, both at the roots and in the atmosphere; consequently the syringe must be brought to bear freely on the foliage twice a day, morning and at closing time in the afternoon, the water to be of the same temperature as advised for the roots.

TEMPERATURE.

The temperature at all seasons should be well maintained, for the Ixora delights in a strong heat highly charged with moisture; indeed, in the height of their growing season—viz., during the last week or two of spring and on through the summer, it would be a rather difficult matter to give them too much. I am, however, no advocate of a strictly given temperature, as such is unnatural and unnecessary, consequently during the growing period the thermometer may range from about 70° at night, varying in the day from 80° to as much as 115°, the latter, of course, to be after closing time, by the aid of strong sun. During the winter months, when the plants may be said to be at rest, they should not be unduly excited by artificial heat, therefore the temperature should range from 60° at night to 70° by day, allowing a rise with sun heat.

VENTILATION.

Ventilation must be attended with care, or more harm than good will result. Never have we found it necessary to open the ventilators during the winter months, and even in summer only those situated at the top of the house; indeed, if I was not compelled to grow ours in a house containing other classes of plants, I would not hesitate for a moment in adopting the non-ventilating system as practised by many Cucumber growers for market. However, as most growers of Ixoras are similarly situated as regards house accommodation, ventilation must be resorted to. Cold draughts or strong currents of air should be studiously avoided. Should high winds prevail, the ventilators will be best kept closed, as sufficient air will enter at the glass laps. Air is best admitted by degrees, so as not to cause any sudden change in the atmosphere. The house should be closed again early in the afternoon according to external conditions; as a rule I close at 3 P.M. throughout the summer, except on extra hot days, when it is left half an hour later.

MANURE.

All growers are not agreed as to the desirability of giving Ixoras manure. As a notable instance of this Mr. T. Baines, probably the most successful grower of these plants ever known, wrote fourteen years ago that his plants never received a particle of manure either in a solid or a liquid form. This would appear conclusive evidence that the application of manure to the roots of Ixoras is unnecessary. But it is a remarkable fact that where one grower will succeed another will fail under almost exactly the same conditions; therefore

it is best to experiment and find out for one's self what is best suited to the wants of his plants. I have found in my own case that when a plant is in a comparatively small pot crowded with roots, and covered with flower buds, applications of Standen's manure at intervals of a few weeks have been of the greatest benefit in their development.

TIME OF FLOWERING.

It is a matter of consequence to exhibitors at which time their plants are required to be in full beauty. If it is found that they are showing for flower too early and cannot be saved by the process of retarding, all the points should be pinched out simultaneously. This is the secret of getting an even mass of flowers, for when the shoots are stopped at different times it cannot be expected that all will flower at one time. The points must be removed not less than eight weeks previous to the day of show, and in the case of *I. coccinea* ten weeks must be allowed, as this variety takes longer to develop than the majority. When the flowers are nearly expanded they may be placed in an intermediate temperature to retard them if found necessary. Three years ago I kept a plant in flower by this means six weeks, after which it was shown in Sefton Park perfectly fresh. The plant was *I. coccinea*, which is the best of all to retain its flowers.

SHADING.

At one time I grew our plants without the least shade, except when in flower. No doubt this has the effect of making them very floriferous, but the foliage did not retain that dark healthy appearance which is so desirable. Subsequently, during the summer, slight shade has been resorted to on bright days, placing it on about 9.30 A.M., and removing the same after closing time in the afternoon. For this purpose we use coarse scrim.

INSECTS.

The insects which infest the Ixora are mealy bugs, thrips, scale, and aphids. These require close attention, otherwise serious mischief will be the result. Very many are the insecticides recommended for these pests, but one of the best, and certainly the safest and cheapest, is clear tepid water, which is best applied to the plants at the ordinary syringing time, as previously advised. This operation, however, must be done thoroughly, so that both the upper and under sides of the leaves receive the full force of the water. For aphides and thrips I have needed no other remedy; but mealy bug has been more stubborn, and necessitated the addition of another remedy. This is methylated spirits, applied with a small camel's hair brush to the extreme point of the shoots, where this insect delights to become established. This may appear a long tedious process, but the rapidity with which an active man can go over a plant is surprising. The labour is lessened if the plants are examined once or twice every week, which should always be done. Throughout the winter the plants should have a thorough washing with the syringe once a week, selecting the early part of the day. This will have a great influence in keeping down insect pests.

SELECTION.

The following—Regina, Williamsi, Fraseri, Westi, Colei, Dixiana, and Prince of Orange—are all good, while Pilgrimi and Morsei are also said to be excellent varieties. Duffi has been declared to be the best of all Ixoras, and magnificent it certainly is, but for richness of foliage, habit, compactness of tuess, and form of individual flower, there is none to surpass *coccinea*. This grand old Ixora was introduced to this country from Java as long ago as 1846, and will still hold its own with any that can be brought against it.

ROYAL HORTICULTURAL SOCIETY.

MARCH 8TH.

SCIENTIFIC COMMITTEE.—Present: Dr. M. T. Masters, in the chair; Messrs. W. G. Smith, T. O'Brien, F. Pascoe, G. S. Boulger, A. W. Bennett, A. Michael, H. N. Ridley, G. Murray, G. F. Wilson, A. H. Smee, Dr. Lane, Professor A. H. Church, and R. v. G. Henslow.

SPATHIOLOTTIS KIMBALLIANA DISEASED.—Mr. O'Brien exhibited a leaf of this plant, apparently attacked by some fungus. It was referred to Mr. W. G. Smith for examination and report.

POLLEN, CHEMICAL ANALYSIS OF.—Professor Church gave some account of his researches in the composition of pollen-grains, *apropos* of some analyses of the pollen of Conifers lately published. He also drew attention to his analyses of Elm flowers ("Journal of Botany," 1876, p. 73), and of the Ash ("Journal of Botany," 1877, p. 364), showing a correspondingly large percentage of nitrogen, potash, and phosphorus pentoxide, the latter containing 7.4 times of the first element, as much as Bech scales, 7.7 times of potash, and 10.5 times as much of the last. The proportions corresponding with the more important functions of the sexual organs to that of the merely temporarily protective purpose of the scales. With regard to pollen Professor Church mentioned that so long ago as 1875 he began an examination of the very abundant pollen of Cupressus fragrans. On April 15th in that year he collected with ease from a single tree several ounces. On analysis it yielded 40.5 per cent. of moisture only—a very low proportion for a newly formed fresh vegetable product. When dried at 212° Fahr., it contained 1.87 per cent. of nitrogen (corresponding to 8.7 per cent. albuminoids), and

1.87 per cent. of oil and other matters soluble in ether. The amount of ash in the dry pollen was 3.7 per cent. One hundred parts of this ash contained no less than 20.14 of phosphoric acid and 35.34 of potash.

A vote of thanks was unanimously offered to Professor Church for his interesting communication.

The following communications were received from Mr. C. B. Plowright:—

USTILAGO ON DATES—The three Dates sent herewith are affected with one of the black smuts described by Corda as *Ustilago phœnicis*. The spore development commences in the interior of the fruit, and in such specimens as are found in commerce the parasitic fungus is usually confined to the interior. Such specimens are not rarely to be met with amongst Dates of an inferior quality; the better samples, which of course command a higher price in the market, may be searched in vain for the fungus. The spores are globose and smooth, of a dark violet colour when seen by transmitted light. In masses they are dusky black. They measure about 4 or 5 mm. across.

USTILAGO ON FIGS—Some further specimens of *Ustilago Ficium*, *Recht.*, are also sent. It will be seen that in this species also the spore development commences in the interior of the Fig. One rarely meets with it in those better qualities of Figs which are sold in boxes, but in what are known in the trade as natural Figs, which are cheap Figs sent over to this country packed in matting, affected specimens are by no means uncommon. When the spores are placed in water I found no signs of germination were evinced at the ordinary temperature in winter; but when the temperature was raised to 50°–55° F. and over, they germinated in the same manner as the majority of *Ustilago* spores do—namely, by emitting a germ-tube into which the contents of the spore freely passed. These germ-tubes varied in length from 20 to 160 mm., with a diameter of from 4 to 5 mm. I was unable to observe the development of secondary spores, for being unable to attend to my culture for forty-eight hours they became dried up and spoiled.—**CHARLES B. PLOWRIGHT.**

The following descriptions with specimens were received from Mr. Wolley Dod:—

HYBRID BETWEEN NARCISSUS BULBOCODIUM VAR. NIVALIS AND N. TRIANDRUS—In August, 1886, Mr. Tait, of Oporto, sent me three bulbs marked *N. nivalis triandrus* X, which are now in my greenhouse, all bearing similar flowers to the one I enclose. I send with it specimens of its supposed parents, and a typical flower of *N. bulbocodium* for comparison. Mr. Tait, in his "Notes on the Narcissi of Portugal," tells us that he found these supposed hybrids in flower on the Gerez Mountains, in the north of Portugal, at an altitude of 3,500 feet, between April 24th and May 17th. In 1815 he found three specimens, and in 1885 four. In every case they were growing where *N. nivalis* and *N. triandrus* grow together, and, as far as he knows, no other variety of *Narcissus* grows within several miles. The characters of the flowers seem nearer to *N. bulbocodium* than to *N. triandrus*, but are intermediate between the two, and so is the colour. The flower differs from *N. bulbocodium* chiefly in the following particulars:—In *N. bulbocodium*—1. The conical outline of the tube is continued in the same divergent straight lines along the outline of the corona, past the point of juncture with it. 2. The divisions of the perianth are never twisted, and their inclination or angle with the corona is always less than a right angle. 3. The style, exclusive of the part within the tube, is always at least as long as the corona, sometimes twice as long, and is not (never) included within it. 4. The filaments and the style are bent visibly upwards near the end. It will be seen how the enclosed specimen of hybrid departs from the above characters, which are taken from comparison of more than fifty flowers, including six different varieties of *N. bulbocodium* now flowering here.

NARCISSI FROM PORTUGAL—In a reply from Mr. A. W. Tait, acknowledging the Botanical Certificate awarded to him at the last meeting, he remarked upon the hardness of *N. cyclamineus*, in that it flowered in the beginning of February, although the temperature fell to 25° F.; this being the severest winter he had experienced at Oporto. He further remarks that he has recognised several of Parkinson's species among the native ones of Portugal, e.g., *N. Johnstoni* (exhibited at the last meeting), corresponding exactly with Parkinson's *N. juncifolius flore luteo reflexus* ("Paradiseus," p. 92). It is rare and local.

JUNIPERUS MALFORMED BY GYMNASPORANGIUM—A large specimen was received from Dr. W. S. Church, which was accepted for the Natural History Museum. The Hawthorn trees in the same garden where it grew have been always badly attacked by *Rostelia*.

PLANTS EXHIBITED—*Cataglyphis discolor*, an old and often-figured species but rarely seen, was sent by Mr. F. W. Moore, of Glasnevin.

ORCHIDS, MALFORMED—Mr. Smea brought specimens. Referred to Mr. Ridley for examination and report.

REVIEW OF BOOK.

The Garden Calendar. By T. W. SANDERS. London: Hamilton, Adams, & Co.

"NOTHING very striking in it," will probably be the remark of many gardeners on first glancing through this well-finished work. The obvious reply is, There cannot be anything to startle the experienced in the records of everyday work in gardens; but the "work" is, nevertheless, important. Even gardeners occasionally feel inconvenienced through fitful lapses of memory, and the best of them are no worse for a reminder, hence the calendars in the gardening press, that gardeners read, though they make no parade of doing so. The work under notice was not, however, mainly written to teach learned professionals, but to assist amateurs. An extract from the preface shows the object of the author and his grounds for producing the volume.

"Calendars of gardening operations have been published almost from time immemorial, but as those once useful volumes are either out of print or obsolete, endeavour has been made to produce a work to meet the requirements of the ever-increasing number of persons who delight in gardening at the present day. In a word, a modern work was wanted, and the author has been induced to prepare one. It is written to suit all classes of amateurs, in language as simple and as free from technicalities as is consistent with clearness, and the matter generally is the embodiment of many years' experience in the practical pursuit of horticulture in various parts of the kingdom."

The plan of the work may be indicated by a few citations, and references to the subjects alluded to under the month of March. Here is the introduction:—

"Gladly will the new-born Spring be welcomed, for with it comes the delightful prospect of sunny days, and the appearance of a host of Flora's choicest seasonable treasures, to dispel, as it were, the dullness of the past, and cheer by their bright enchanting presence the hearts of those who love their garden. Not only does the commencement of the vernal season furnish us with these new pleasures, but also forcibly reminds us of the approach of a busy period. Throughout the whole of this month there will be a great deal requiring close attention, both in the indoor and outdoor garden. The sowing of the vegetable seeds for future crops, of flower seeds for pot and outdoor culture, and the propagation of the many hundreds of bedding and other decorative plants, will afford active employment, and demand the exercise of much care, skill, and judgment. In all that is undertaken in the garden do it well, for however simple the nature of the operation in hand the more pains there is taken, and the greater the skill bestowed thereon, the better will success be attained in growing excellent crops of fruit, flowers, and vegetables."

Under the heading of the "Vegetable Garden," "seasonable vegetables" are thus referred to.

"Outdoor vegetables are not generally plentiful during this month, hence recourse is had to forcing for supplying the deficiency. There should still be some good heads of Broccoli, also Borecole, Celery, Jerusalem Artichokes, Coleworts, Savoy, and Cos Lettuce, and a similar variety of roots to those mentioned last month. The forced vegetables may consist of Asparagus, Seakale, and Rhubarb, and salads of Mustard, Cress, seedling Lettuce, Radishes, Chicory, and Dandelion."

Then follow copious hints on the Preparation of the Soil, Seeds to be Sown, Planting, Mushroom Beds, and a paragraph of miscellaneous items.

In the "Fruit Garden" section the remarks on fruit in use being:—

"The season is too far advanced to have anything like a good supply of Pears and Apples. Of the former Bergamotte Esperen, Easter Beurré, Beurré Rance, and March Bergamotte are the only varieties available for dessert; and Sturmer Pippin, Cackle Pippin, and Nonpareil as dessert Apples, with Winter Pearmain, Hanwell Scuring, Hambledon Deux Ans, and Norfolk Beefing for kitchen use.

Paragraphs following on planting, pruning, grafting, &c.

We next come to the "Flower Garden," to which we are introduced by the following list of hardy plants in flower.

"Simultaneously with the appearance of spring, beds, borders, and rockeries begin to assume a gay and cheerful aspect. To enumerate all the beautiful hardy plants in flower during this month would occupy more space than we can afford, hence only the *crème de la crème* of them can be recorded here:—*Androsaces ciliata*, *carnea* and *Wulfeniana*, *Daphne Blagayana*, *Anemone fulgens*, *Iberis sempervirens*, *Fritillarias Moggridgi* and *pallidiflora*, *Cyclamen Atkinsi*, *Orocus alatavicus*, *Galanthus Elwesii*, *Iris reticulata* and *stylosa*, *Bulbocodium vernalum*, *Primulas ciliata*, *cashmeriana*, *farinosa*, *glaucescens* and *integriifolia*, *Scilla bifolia*, *Omphalodes verna*, *Rubus arcticus*, *Saxifragas camposi* (Wallichi) and *sancta*, *Hepaticas angulosa* and *triloba*, *Narcissus ceruus*, *Genista præcox*, *Tulips*, *Hyacinths*, *Polyanthus*, *Daisies*, *Wallflowers*, *Silenes*."

Instructions follow on pruning Roses, the management of florists' flowers, and other seasonable "items." Work in vineries, orchard, and Peach houses, also the treatment of Cucumbers and Melons, are discussed over two pages; that, in connection with the plant stove, greenhouse, conservatory, cold frames, and window plants, being given in a series of long and short paragraphs. As showing how fully current matters are dealt with, we find twenty-six paragraphs extending over fourteen pages for the month. The plan indicated is followed throughout the year. The work also contains in its 188 pages tables for sowing and planting, useful receipts and hints, a good illustrated chapter on propagation, and a copious index. Though the work is not faultless, the author has evidently bestowed great pains in its preparation, and the result is the most complete modern calendar of gardening operations with which we are acquainted.

We have said the work is not faultless. The best writers are those who give the most information or convey the clearest ideas in the fewest well-chosen words. In several pages of the volume before us we find a redundancy of words. An example may be taken at random from page 155, where we are told that "the planting of fruit trees may still be continued providing the condition of the weather be favourable thereto."—a roundabout method of saying what half the number of words would express—"Fruit trees may still be planted in favourable weather." The difference of expression indicated may appear a small matter, but it embodies a great principle—namely, whether diffusiveness or precision should predominate in literary work. A prominent "man of letters" has recently decided strongly in favour of the latter, and in that decision we entirely concur. On the page preceding that quoted we find a singularly involved paragraph on pruning Peach trees. It is stated "the great aim in the successful cultivation of these trees should be to give them proper attention during the season of growth." Very true; but the author adds: "and not at a time when such is of little use." Assuming the "such" refers to "proper attention," the difficulty arises of understanding how the attention can be "proper" when it is of "little use." On the other hand, if the "season of growth" is of "little use"—then what?

In preparing another edition of what from a practical point of view is a comprehensive and good work of its kind, a little revision will be

necessary to render it of corresponding literary merit, and it is particularly important that the names of plants be corrected, as we observe numerous instances of erroneous spelling—some even in the index—that will be misleading to amateurs. We corrected one or two such errors in the citation given.



HARDY FRUIT GARDEN.

LATE PRUNING.—Much of the pruning of all kinds of trees will have been completed, but our remarks may induce some readers to examine their trees a second time. Long ugly spurs standing out from the main branches of Pears, Cherries, Plums, and Apriots are much too plentiful, these if fairly fruitful yet losing the benefit of the shelter and heat provided by the walls. They should not be removed wholesale, the wisest plan being to cut back a portion of them each season. The least experienced cultivator will now be able to recognise all the fruit buds as distinguished from the wood buds, and may therefore decide where the long spurs can best be spared, thinning these out accordingly. The work should either be done with a sharp knife or strong pruning seissors, a pruning saw being necessary for removing extra strong spurs. In every case care should be taken not to drag the spurs away from the branches, and they may be either cut to a good back fruit or wood bud, or to within 1 inch of the main branch. Some of these late-shortened spurs may not start afresh, but as a rule a cluster of short shoots will form around most of them, these being eventually converted into fruiting spurs. A gradual reduction of the number of long and perhaps useless spurs, coupled with partial autumn lifting and root-pruning, a fresh loamy compost being given at the same time, will soon convert a comparatively valueless tree into a very profitable state. Some of the finest crops of Pears we have seen were grown on trees treated as just described, and other kinds of fruit trees are much benefited by similar treatment.

MANURING FRUIT TREES.—Poverty at the roots is a frequent cause of many trees failing to perfect crops of first-class fruit. When planted in rich loamy soil the trees need little or no manure for several seasons, but when in full bearing they ought to receive a surface-dressing of manure at least every second year. If available the preference should be given to half-decayed farmyard manure, this being very lightly forked into the surface. The roots being plentiful near the surface, which is most desirable, turning in the manure may destroy a few of them, but this is of no material consequence, plenty more being formed and encouraged by contact with the manure. Small fruit trees of all kinds are apt to root shallowly, and it may be in some few instances that disturbance might have an injurious effect on them, but according to our experience the greatest benefit attends the forking in of the manure. When merely laid on the surface it is apt to dry up rapidly, and it is a long time before the roots lay hold of it. Lightly buried it is almost equally effective as a mulch, none of the manurial properties are lost, and it does not offend the eye. Exhausted Peach and Apriote borders must have a good dressing of manure, or, at any rate, the trees will repay for any outlay in that direction, and the same remarks are equally applicable in the case of Pear trees. If good fresh loam is available a compost formed with this and decayed manure in equal quantities and a liberal sprinkling of lime rubbish and wood ashes may well be substituted for the dressing of manure. Our plan when thus treating the trees is to lightly fork away the old soil from the surface roots and add the fresh compost, facing this over with a little of the old soil. Fresh rootlets soon take possession of this tempting food, and these may be kept near the surface by the aid of timely summer mulchings of rough manure or short grass from the mowing machine.

BIRDS AND THE FRUIT BUDS.—Bullfinches are more destructive to fruit buds of all kinds, with the exception of Apples, than they have ever been to our knowledge. Other food would appear to be scarce, and the long spell of cold dry weather keeps the fruit buds completely at their mercy. We have been obliged to place nets over Peaches, Plums, and Pears, or the whole of the buds would soon have disappeared. Gooseberries are invariably visited by these destructive pests, and late pruning is our surest means of securing a fairly good crop on the large breadths of bushes we have under our charge. This season only quite the lowest branches will be cut away, and what thinning out may be necessary will be done according as the green fruit is gathered. This plan answers well, but is scarcely to be commended where only a few bushes are grown, as in this case it is a simple matter to keep them either coated with strained limewash applied through a syringe, or by attaching plenty of cotton lengths to the outer branches, the latter apparently much discommoding the birds who come into contact with it.

FRUIT FORCING.

FIGS.—*Early-forced Trees in Pots.*—The crop of Figs is now swelling rapidly, and the trees will require to be well supplied with water at the roots. They should also be syringed twice a day. If the pots are well drained it is scarcely possible to apply water too copiously when the

trees are in full growth. The night temperature may be continued at 60° to 65°, with 10° more by day, and from sun heat an advance to 80° or 85°, affording plenty of ventilation when the weather is favourable.

Planted-out Trees.—The growth is rapid, hence the necessity of frequent attention in stopping the shoots at the fifth or sixth leaf. As a well developed spur gives the best results in the second crop, when a number of shoots appear together they may be all removed but one, so as to cause it to be sturdy and fruitful. Train and regulate the terminals as required. Keep the house moist by daily syringing and damping the paths, &c., at closing time. This is a good time to propagate young plants from cuttings. Select shoots from 5 to 6 inches in length; with a heel of last year's wood attached they strike very freely in bottom heat.

PINES.—The rooting of potted suckers will be indicated by the growth of the foliage, but it is as well to turn the plants, or at least a portion of them, out of the pots, so as to ascertain the condition of the roots and the soil. The roots which issue from the suckers or plants subjected to similar treatment are very tender and susceptible of injury from the effect of too much bottom heat; hence when they reach the sides of the pots a temperature of 85° is ample, above which there is danger. When the bottom heat is excessive the pots should be raised, placing some loose tan under and around them, so as to allow the superabundant heat to pass away. The plants must not be neglected for water at the roots.

Established plants will now make roots rapidly, therefore have soil in readiness for transferring them to the fruiting pots, it being important that they be grown without check. Sound fibrous loam in good-sized lumps is the best material for potting, pressing it firmly round the roots of the plants, watering the plants with tepid water, and plunging them in a bottom heat of 90° to 95° until the roots have possession of the fresh soil, when 85° is more suitable.

Fruiting plants and those that are near the flowering state should have a night temperature of 65° to 70°, and 75° by day, with 80° to 90° from sun heat, closing at 85°, well damping all available surfaces in the house at that time. Afford successional plants a bottom heat of about 85°, ventilating at 80° and closing at 85°, lightly sprinkling the plants occasionally.

MELONS.—Notwithstanding the cold, the early plants have made good growth, and are showing fruits upon the first laterals, that admirable variety, Eastnor Castle, being remarkably free, and Blenheim Orange equally so. To ensure the setting of the fruit it is necessary to afford a bottom heat of 80° to 85°, and sufficient moisture in the soil to prevent the foliage flagging. This will arrest the growth, and in combination with a dry atmosphere, a circulation of warm air passing through the house will favour the production of pollen. Fertilise the female blossoms every day, and stop the shoots one joint beyond the fruits. When the fruits commence swelling earth up the roots by placing warm soil against the sides of the ridges or mounds. Apply water as required, and avoid a sodden condition of the soil, maintaining a good moisture by sprinkling, morning and evening, and syringing lightly at closing time in bright weather. If a succession of fruit be desired in the same house some of the plants should be deprived of the flowers that appear on the first laterals; stopping these at the first joint will cause the sub-laterals to show fruit, which will be rather later and finer owing to the increased vigour of the plants.

Plants in pits and frames with the shoots trained over the surface of the beds will require treating in a similar manner to Cucumbers, lining the beds and adding soil as the plants advance in growth. Train and regulate the shoots, removing every alternate lateral, and apply water sufficiently to maintain a steady growth. As soon as the successional plants are ready plant them and pot the seedlings. Seed may be sown to yield plants for planting in pits or frames as they become cleared of early Potatoes, about five weeks being required to secure strong plants.

CUCUMBERS.—In houses the night temperature may be increased to 70°, watering more freely and increasing the atmospheric moisture. In the daytime 85° to 90° from sun heat should be allowed. Once a week thin out superfluous growths, not, however, removing large quantities of foliage at one time. Plants that have been in bearing all the winter may have the beds renovated by removing with a fork as much of the soil as can be done without injury to the roots. Supply very rich lumpy compost previously warmed.

Dung-heated beds which have been made up for a few weeks will need good linings. Remove as much of the outside of the beds as can well be spared, and if the heat has not greatly declined it will suffice for the present if one-half the bed be lined, deferring the other half until the heat is again on the decrease. Let it be applied to the width of 2 feet. Thin linings are of little use, being soon spent and sooner require renewal. When the heat is up in the lining see that there is no accumulation of rank steam in the frame, especially when the sun is powerful, preventing it by ventilation. A good night covering will be necessary to maintain a temperature of 65° to 70° at night. Admit a little air at 75°, and permit the temperature to increase to 85° or 90°, closing at 80° or 85°, not, however, to cause the temperature afterwards to exceed 90° or 95°. Add a little more soil as the roots spread on the surface. Attend to training and pegging the shoots, being careful not to overrowd them. Stop the leading shoots a foot from the sides of the frame, and the laterals at one or two joints beyond the fruit. In watering do not wet the foliage more than can be helped. A sowing may be made to raise plants for growing in pits or frames that have been occupied by early Potatoes, Radishes, &c. In four or five weeks the seedlings are ready for planting.

STRAWBERRIES IN POTS.—Although the Strawberry swells freely in a high moist atmosphere, yet when the fruit changes colour a drier and more freely ventilated atmosphere is most desirable, but there must not be a sudden change, or the fruit will not finish satisfactorily. The temperature for swelling should be 65° at night, and 70° to 75° by day, advancing to 80° or 85° with sun. The second batch has set very well, but thinning is often thought a needless operation, yet to produce fine fruit not more than half a dozen should be left on each plant. When the fruit is fairly swelling, and it is wished to forward the crop, the plants may be moved to a house with a temperature of 60° to 65° at night, 70° to 75° by day, with an advance to 85°, affording the plants liquid manure copiously, looking over them twice, and in very bright weather three times a day, watering such as need it. Plants in vineries and Peach houses, which are started periodically, will afford successive supplies of fruit, there being no need in such cases to remove the plants except to meet special requirements. If plants be placed in ground vineries or plant protectors, fruit very much finer and about three weeks earlier than that in the open ground will be secured.

PLANT HOUSES.

Primulas.—Those raised from seed sown a few weeks ago will be ready for pricking from the seed pot or pan into others. Fill the pans with a compost of equal parts of leaf mould and loam, pass the whole through a quarter-inch sieve, with a liberal dash of sand added. The young plants should be placed about 1 inch apart, so that they will have room to develop themselves until they are large enough for placing singly in 2-inch pots. After pricking them out, give a good watering, and shade from bright sunshine. For the present they should be grown close to the glass in a temperature of about 60°.

Double Varieties.—Some of the lower leaves may be removed from those that have flowered, and the stems earthed with light sandy soil. If the plants are kept in a moderately moist atmosphere in a temperature of about 60°, they will quickly emit roots from their stems, and in the course of two or three weeks can be divided. This is a more certain method of increasing the stock than by means of cuttings. These are liable to damp, but after they form roots from the stem above ground they can be cut and potted singly in small pots without losing a plant.

Primula oboconica.—Plants raised from seed sown as soon as gathered are ready for placing in 3 and 4-inch pots. From this time grow the plants on a shelf in ainery just started or some similar structure. Those raised from seed sown some time ago will be ready for pricking-off singly. These should have the same treatment as the Chinese varieties. For conservatory decoration no better or more useful plant can be grown, for it continues to flower freely from October until June in a temperature of 45° to 50°. Plants should be raised annually from seed, which is freely enough produced during the months of May, June, and July from plants that have not been too much exhausted by flowering previously. After they have done their duty convey them to the rubbish heap, for they do not grow freely if they are subjected to division.

Primula Sieboldi (cortusoides amoena).—Many of the varieties are invaluable for conservatory decoration during the months of May, June, and July. Those that have been wintered in cold frames or a cool house will have pushed into growth. These should be turned out of their pots, the roots partially reduced, and repotted in good fibry loam three parts, one part leaf soil, with one-seventh of cow manure, passed through a fine sieve, and a liberal dash of sand. These plants are most serviceable in 5 and 6-inch pots, but may be successfully grown in larger, or even in pans. Divide the stock into two or three batches, allowing one to remain in a cold frame with a south aspect, another in a northern position, and a third place on a shelf in the greenhouse, where the temperature ranges about 45° at night. Give air freely on all favourable occasions to prevent the foliage drawing up weakly. Stock may be increased by division of the rhizomes.

Primrose Harbinger.—Plants grown in pots for conservatory decoration must be cared for after they have done flowering. Grow them for a time in a cool house, and finally remove them to a cold frame to complete their growth. From this position they should be hardened and plunged outside, where they will not be exposed to the sun during summer. A good place for them is behind a north wall. They should have liberal supplies of water.

THE BEE-KEEPER.

CURRENT DISCUSSIONS.

THE HONEY MARKET.

IN the first place let me thank Dr. Walker for the balance sheet of the British Honey Company, Limited; and in the second place let me tell him and all others that I decline to enter into any discussion when the argument is foreign to facts. Thirdly, I assure him that I neither thank nor censure him for his bit of irony about my pious remark. But I rebuke him for the mingling of subjects foreign to the question at stake. Fourthly, it is not nationalism I want to discuss, but facts. Scotchmen are as a rule patriotic, and few of them would, after assuming hospitality and kindness to the Canadians, turn upon them and their produce after they had left this country. No, a thorough Scotchman would have told them to their face what he thought of them.

I have no intention of prolonging the discussion further than making

a remark or two on what has appeared. Dr. Walker still accuses me of being concerned in the proposed "Bee-keepers' Union," which I repudiate; but may tell him and all others that when self-interest outside *bona-fide* bee-keepers becomes a thing of the past, and the *British Bee Journal* allows both sides of the question to appear in its pages, then will bee-keepers become alive to the snare they have been trapped in. I feel certain, Mr. Editor, you would be glad to see many more persons engaged in profitable Grape culture, but I am also certain that you would not like to encourage them in that pursuit; then, when they asked where the market was, you would turn round and tell them that 3d. per lb. was sufficient; that that was a high price for American and Almeria Grapes, and they must be content with that; but for their sake and "your own interest" you would start a Grape company. That is exactly the position of the bee-keepers and the Honey Company. Apart altogether from the profit question, the cultivation of fruit, flowers, and bees raises both the mental and moral qualities of those engaged in the pursuits. We want to see more bee-keepers as well as fruit growers, and less monopoly; and when that occurs, and unanimity is established amongst bee-keepers, then will the "British Bee-keepers' Union" appear. But even with all the opposition the proposed Bee-keepers' Union was exposed to, I had numerous inquiries about it, from persons ready and anxious to join it, and had it been but started I would have given it and the promoter my hearty support. It is a scheme well adapted for bee-keepers, and I trust it will find favour with bee-keepers throughout the kingdom.

My argument from the first was simply for the purposes of bettering bee-keepers by bringing consumer and producer together, so that middlemen's profits might be avoided; but instead of the Honey Company bettering bee-keepers they have simply done the reverse. I am acquainted with some honey merchants who in one season bought more honey than the Honey Company has done, gave the producer a good price for it, and made a handsome profit on the honey; but it must be observed they would not sell an ounce of foreign honey. They kept faith with their customers, and the customers in turn had faith in their merchant; but it would have been otherwise had they sold or purposed selling an inferior quality, like that which Dr. Walker condemns, but which he and his colleagues mean to make money out of if they could not buy British honey.

Then there is another thing, Mr. Editor, with which you along with many others will agree, that bee-keepers as well as fruit growers should be rewarded for their labours, even although it be during their pastimes. The members of the British Bee-keepers' Association have been very loquacious in times past about what they have done gratuitously for bee-keepers—which is also a question—yet they turned round and told the bee-keepers of the United Kingdom that their time employed in attending to bees was not to be taken into account. I do not feel inclined to say more on this matter at present, but in conclusion say that if Dr. Walker has overstrained himself attending to "babies and Chrysanthemums" he should call in a physician.

ERRATUM.—At page 162, tenth line from bottom, instead of "20 lbs. annually" read £20 annually.

FOREIGN RACES OF BEES.

AT page 202 "Notts Bee-keeper" gives some particulars regarding his own and an expert's bees. He also makes a quibble over the colour of the bee, and puts a construction upon my words contrary to facts. As to the colour of bees, they are not unlike some creatures, changing colour according to circumstances. Like himself, we are all doing our best to instruct the novice, which is, owing to so much diversity of opinion often through want of experience, no easy task. So far as the nomenclature of the colour of our native black, brown, blackish brown, brownish black, or greyish bees are concerned, we need not bother nor quibble about it, since everybody knows what is meant by the expression common black bee. There is no black bee of a uniform colour. I have some bees the progeny of a pure Carniolian, and I sent to a gentleman in England last autumn another queen which also bred bees almost black, which were so conspicuously so as to excite an inquiry, What was the male parent? I could not answer, but I have often witnessed drones from imported Ligurian queens jet black. There is something more than the question of colour by which we can decide a pure race of bees; shape and character must be taken into consideration. I have known apiaries of black bees so thoroughly ligurianised that judging from the appearance few if any person could tell their origin. Yet after Ligurian bees were discontinued to be kept in the neighbourhood, the colour, by breeding back and intermingling with Carniolian drones, has entirely disappeared. Yet the owner persists in saying his bees are pure black. I have witnessed drones returning eight miles bee flight to their original site after they were removed to the Heather, which gives us an idea how the drones spend their time during their midday flight, as well as how queens are so liable to mate with alien blood.

"Notts Bee-keeper" tries to make it appear that my Ligurians gathered most honey, or rather that they are the best honey gatherers. I said no such thing. It is true that the highest weight I have on record is from a Ligurian cross, but neither the Cyprians, Syrians, nor Carniolians had the opportunity of so good a season as the Ligurians had, which have for long been the exception and not the rule, and what we northerners have to contend so much with, which our brother apiarians in the sunny south know little about, and which tells more in their favour than even good management.

Your correspondent says, "L.B.K.'s" best results appear to have been from Ligurians and their crosses, but through being subject to

a certain disease he has discredited them in favour of Cyprians and Syrians, which do not appear to produce as much honey, but many more bees." That is not in accordance with facts. No variety has given me more honey and with less trouble than the Cyprian blood has done, and the Syrians do not appear to be behind them. "Notts Bee-keeper" seems to be of the opinion of many others in the old school, that prolificness is a fault in the eastern races of bees. If numbers are a fault, why do we hear of bee-keepers advising the joining of two or more swarms or colonies, and proposing every conceivable plan, absurd and otherwise, to promote breeding? All the eastern races of bees are as good collectors and as fond of honey as ever the black bee was, and so prolific that one swarm of either will do the work of two of the common variety.

The disease spoken of was experienced by the late Mr. T. W. Woodbury nearly a quarter of a century since, the same time as I experienced it, and it was recorded in this Journal at the time, notwithstanding the scepticism of those whose discoveries are commonly made at a later date to that of the first discovery made by someone they have no love for. Some years since I wrote an account of a fresh outbreak of this disease in my apiary to a contemporary (*British Bee Journal*), but the editor garbled and mangled the article as to make it ridiculous, and while sneering at it tried to attribute the disease to full combs of honey, which he termed "slabs of ice," although I showed plainly that it was a summer disease; but allowing bees to feed upon their own stores did not appear to suit his ideas so well as "stimulative feeding." The expert who "italianised" the whole of his hives then without giving them probably a fair trial goes and "anglicises" perhaps, too, with half foreign blood, has neither acted expediently nor very judiciously, and by acting so rashly does not prove himself an expert in my opinion.

For the benefit of all concerned I advise every bee-keeper to endeavour to procure one of the eastern varieties, either Cyprian or Syrian, and egyptianise or syrianise a third of their hives and await the result, which I feel certain will not be disappointing, providing a good season comes and proper sized hives are used. It does seem strange that I should have occasion to tell bee-keepers that the stronger the hives the more honey is likely to be gathered, and that they should become impressed with the fact, and to give no heed to those who say prolificness in the queen is a fault. Yet that is just what some impute to the foreigners as being a great fault and cause of failure, but with me it has been the means of harvests of honey that would have been nil from the common variety, or I never would have allowed them to become extinct, as I believe they nearly are in this part of the country.

After a week's very foggy weather snow commenced to fall on the 10th, and also on the 11th March, and lies to a depth of 5 inches and more. The wind is easterly.—A LANARKSHIRE BEE-KEEPER.



All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

TO CONTRIBUTORS.—Our friends who favour with communications on controversial subjects will oblige by sending their articles as soon after they receive the Journal as possible. Our space is practically filled on Monday, and only articles that are "expected," and which arrive on Tuesday, can, as a rule, be inserted in the current issue.

Chemical Manures (W. W.).—It is quite impracticable to give a comparative estimate of value of the manures you name. We might find one better than the other for our soil, but that one might not be the best for yours. The manures are good and you can have little if anything to lose by trying them all, and may thus gain more valuable information than is obtainable in any other way.

Premiums in Gardens (No Name).—Your name and address must be sent before we can consider and reply to your letter. We should also like the name and address of the gardener to whom the premium was paid.

Dividing Tuberous Begonias (J. B.).—The tubers may be divided just when growth is starting, dressing the cut parts well with powdered charcoal to dry the wounds, and taking great care not to overwater after the tubers are potted. It is a good plan to start them in damp cocoa-nut fibre refuse,

with small broken charcoal next the sides that are cut. Some of them may possibly decay.

Root Grub (A Gardener).—The grubs you have sent are the larvae of the very troublesome weevil, *Otiorhynchus sulcatus*, which attacks a great variety of plants. It may be killed by hellebore tea, or the petroleum mixture so frequently described in these pages. In about six weeks the beetles will be emerging, and it is necessary to look after them, as they do mischief, appearing at night in houses as well as out of doors. They should be searched for with a lantern and shaken into a net or cloth.

Eucharises (W. J. C.).—The Eucharis leaf is very fine indeed, stout in texture, and of that deep green colour indicative of robust health. The flower is also of good substance. There can be nothing the matter with plants that produce such fine foliage, and as the bulbs were formerly seriously attacked with the mite, the remedy adopted must have been effective.

Propagating the Myrobalan Plum (Norsk).—To obtain stocks in great plenty the long shoots from the stools of last year's growth are laid down in the spring their full length, and covered with soil; almost every bud sends up a shoot, and roots are formed nearly contemporaneously. In autumn the shoot laid down is cut off, and then cut into as many pieces as there are young shoots and roots. It may be increased also by cuttings, preferably inserted in the autumn; but you may try some now of firm young wood cut in lengths of 9 inches or so, embedding them firmly in sandy soil, leaving only two buds of each above the surface.

Valves in Pipes (W. M.).—Your sketch is so small and imperfect that it is practically impossible to trace the arrangement of the pipes. Had you afforded yourself thrice the space you would have made the plan clearer. We can only say that so far as we understand the case valves should be placed in both the flow and the return pipes. The patent valve you describe is new to us, and we cannot express an opinion on what we have not seen. As it is in we should not take it out without a trial, and its efficiency or otherwise can soon be tested. We shall be glad to hear whether it answers its purpose or not.

Gypsophilas (W. B.).—Probably as you suggest, the sprays of these plants were used in a dry state on the occasion mentioned, but they are extremely graceful when fresh, and are often employed for vases in table decorations at exhibitions. *G. paniculata* is taller than most others, and very free. They are readily increased by seeds sown out of doors in the spring or in pots under glass for earlier purposes. Seed can be obtained of most seedsmen.

Vine and Marechal Niel Rose (Draper).—You have plenty of room in your house for more than one Vine and one Rose, but by waiting one of each will eventually cover the roof, under good management. If you wish to cover the space quickly you may plant Roses 2 feet apart, and Vines between 3 and 4 feet asunder, along the front, training them up the roof, but if you prefer to wait till one of each occupies the desired space by all means do so. The mixture you describe is far too rich for Vines. Take it out of the pit and well mix it with three times its bulk of good loam, and it will be suitable for both Vines and Roses.

Lilium neilgherrense (A. Spinks).—This species is not a very free grower, and is better cultivated in pots in a light greenhouse or cool pit in summer than planted out. The bulbs should be potted in turfy peat, to which a little loam and some crushed charcoal and sand may be added, embedding and surrounding them with sand. The soil should be just damp enough for compression when used, then if the pots are plunged just over their rims in damp cocoa-nut fibre refuse the soil in the pots will be kept uniformly moist without giving water till roots form and growth extends above the surface. If you have only one bulb the pot containing it can be placed in one much larger, the space between them being filled with fibre to be kept damp. A pot twice the diameter of the bulb will be quite large enough. The price of bulbs depends on their size, and can be obtained on application to nurserymen.

Grafting Pears (F. J.).—We do not understand your sketch and letter. If you have cordon Pears reaching as high as either "a" or "b" in your sketch we fail to see how grafting could be an advantage for covering the arch. If the varieties are inferior that is another matter, and you may cut down the trees to any extent you like. It is quite true that scions should be the matured growths of last year, but they can be attached to stems of any age provided they are healthy. Probably the lower the grafting is done the better; at any rate there should not be many, if any, growths on the stocks below where the scions are attached. The scions must be cut off at once, and kept cool and fresh in soil or fibre till the stocks take the lead in growth. Grafting wax varies. If you can use clay better than the wax by all means use it, mixing cowdung with it to prevent cracking; it is then as good as wax.

Reprinting Articles (Aliquis).—We do not think it likely the articles referred to will be reprinted until a greater demand arises for them, for the reason that the venture would most likely be the reverse of profitable. Some writers are so ambitious to produce books and pamphlets that they are willing to risk some pecuniary loss in becoming "authors," and not a few lose more or less considerably by such ventures. Our correspondent is free from vanity in that direction, and would not feel justified in doing what you suggest through a solitary proposition. An inexpensive method of preserving a few articles in compact form is to purchase two copies of each number containing them, as they can then be cut out and pasted in a book. Several persons adopt that plan and find it satisfactory.

Ferns in Vineries (Constant Reader).—The species chiefly cultivated at Chilwell is *Adiantum cuneatum*, and there is probably more fronds of this sold in the London and other flower markets than of all other kinds put together. It is one of the easiest of Ferns to grow, and one of the most productive in yielding fronds. The plants are generally grown in pots ranging in size from 5 to 9 or more inches in diameter, according to the age and size of the plants. Small healthy well-established plants in 3 and 4-inch pots are shifted into pots 5 and 6 inches in diameter, and in these they produce fronds abundantly under good management. These plants are either divided and the numbers increased early in spring, or are grown larger by being transferred to 8 or 9-inch pots. When in this size

Ferns can be kept healthy for years with good judgment in watering, including periodical applications of weak liquid manure and annual top-dressings of fresh soil. A supply of plants is best maintained from spores, but only experts can raise them successfully, such plants usually developing better fronds than those established from divisions. The present is a good time to commence growing Ferns. Young plants grow the most freely in a mixture of loam, leaf soil, and sand, but stronger plants enjoy more generous fare, such as sound turfy loam, much-decayed manure, and a free sprinkling of finely crushed bon-s, and if potted firmly they develop fine firm fronds. They enjoy some shade, such as Vines afford, and a genial atmosphere, but the more light they have the harder the fronds become, and the longer they keep fresh when severed from the plants. They soon lose colour if not adequately supplied with water, or if the roots get dry before a liberal application. It is not easy to give too much water when the pots are densely packed with roots in the summer; but overwatering must be avoided in winter, also in the case of newly potted plants, for if the soil is made sour roots will not readily take possession of it, and there can then be no healthy growth, but at the same time the soil must never get dry before water is given. A good work on Ferns is published by Mr. B. S. Williams, Victoria and Paradise Nurseries, Holloway, London, N.

Inarching Camellias (York).—Inarching does not consist of taking portions from one plant and attaching them to another, that being grafting, but in placing two plants together and attaching portions of one to the branches of the other, by taking slices from the stems of each, fitting the growths carefully, and binding them with soft ligatures, not severing the attach d portions from the parent plant till the union of the two has been effected; that is inarching. But you appear to desire to have recourse to grafting. This is easily effected in the case of young plants raised from cuttings and established in small pots, because the plants can be conveniently placed in close, moist, and rather warm cases. Well-ripened, short-jointed cuttings are taken of last year's wood, sliced and affixed to the stock a little above the soil, and there secured with matting and moss, one good leaf and bud sufficing above the ligature, though two are often left. As suggested, they must be kept close and damp, or the moisture will evaporate from the leaves of the grafts more quickly than it is supplied by the roots of the stock, the union then being slow if effected at all. If you desire to attach a number of grafts to a large plant or plants, and you cannot lay these down in a close case, as suggested, you had better try "bottle grafting," which is very similar to inarching, the only difference being the grafts are kept fresh with water absorbed from the bottle instead of with sap supplied by the parent plant. The stock must be healthy and commencing free growth at the time the grafts are attached, the buds of which are swelling, or, in other words, the stock should be in advance of the scion. The plants thus operated on must be placed in a shaded position in a warm house and frequently syringed to incite quick and free growth. The small engraving shows the method of bottle grafting, but a little ingenuity may be needed to suspend a number of bottles in suitable positions on a large plant.



Fig. 40.

frequently syringed to incite quick and free growth. The small engraving shows the method of bottle grafting, but a little ingenuity may be needed to suspend a number of bottles in suitable positions on a large plant.

House for Half-Hardy Plants (H. B.).—If you require an ornamental structure it will be advisable to consult a horticultural builder, who would also be best able to judge as to the kind of rockery most suitable to the situation. Houses of this kind have been devoted by a few amateurs to the purpose named, notably the late Mr. G. J. Joad, Oakfield House, Wimbledon, and Mr. J. Broome, Didsbury, Manchester. The former had the houses sufficiently heated to exclude frost in severe weather, with central and side beds, in which the occupants were planted out, and succeeded admirably. For the roof were employed *Bomarea caldasi*, and *B. Carderi*, *Cestrum aurantiacum*, *Clematis indivisa*, *Hibbertia dentata*, *Abutilon vexillarium*, *Rhodochiton volubile*, *Plumbago capensis*, and *Tacsonia insignis*, any of which would succeed with you, also the *Lapagerias*, *Tea Roses*, *Lonicera sempervirens*, and many others. In the beds were numerous rare bulbs and such ornamental plants as *Abelia rupestris*, *Lasiandra macrantha floribunda*, *Calceolarias*, and a general collection of half-hardy perennials, that rendered the house attractive for the greater portion of the year. At the other establishment (Mr. J. Broome's) the plants are mostly grown in pots, and are brought into the house from frames in succession, so that the arrangement can be frequently altered and the old plants removed when the flowers fade. There are many Ferns adapted for such a house. Any of the choicer varieties of British Ferns, such as the *Atyriums*, most of which are very graceful, can be employed; and some of the most effective of others are the following:—*Asplenium bulbiferum*, *A. dimorphum*, *A. flaccidum*, *Blechnum australe*, *Cyrtomium falcatum*, *Davallia canariensis*, *Dicksonia antarctica*, *Gleichenia dichotoma*, *Lastrea aristata*, *Lomaia gibba*, *Lygodium acandens*, *Nephrolepis davallioides furcans*, *Platycerium alcicorne*, *Pteris serrulata cristata*, *Thamnopteris Nidus*, and *Woodwardia radicans*. Abundance of smaller growing plants will be found in the *Adiantums*, *Aspleniums*, and *Pterises*. If you require any further information we shall be pleased to reply to any query.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once.

(J. H. M.).—Your plant is *Iris fimbriata*, which is often grown in pots for the greenhouse in old gardens. (G. F. B.).—*Brassavola nodosa*. (W. Little).—*Cymbidium pendulum*. (J. R. P.).—*Dendrobium fimbriatum oculatum*, known in some gardens as *D. Paxtoni*. A fine specimen was figured in this Journal, page 425, May 27th, 1886.

COVENT GARDEN MARKET.—MARCH 16TH.

TRADE dull. Good samples of Grapes making better prices. A few Strawberries to hand, with little demand.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples	1	0 to 5	Melon	0	0 to 0
„ Nova Scotia and			Oranges	100	6 0 to 12 0
Canada, per barrel	10	0 13 0	Peaches	per doz.	0 0 0
Cherries	1	0 0 0	Pears	dozen	1 0 2 0
Cobs	100 lb.	60 0 70 0	Pine Apples English ..	lb.	1 6 2 0
Figs	dozen	0 0 0	Plums	1/2 sieve	1 0 2 0
Grapes	lb.	4 0 8 0	St. Michael Pines ..	each	2 0 5 0
Lemons	case	10 0 15 0	Strawberries	per lb.	12 0 16 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes	dozen	1 0 to 0 0	Lettuce	dozen	1 0 to 1 0
Asparagus	bundle	8 0 0 0	Mushrooms	punnet	0 6 1 6
Beans, Kidney ..	per lb	1 6 0 0	Mustard and Cress	punnet	0 2 0 6
Beet, Red	dozen	1 0 2 0	Onions	bunch	0 3 0 0
Broccoli	bundle	0 0 0 0	Parsley	dozen bunches	2 0 3 0
Brussels Sprouts ..	1/2 sieve	2 0 2 6	Parsnips	dozen	1 0 2 0
Cabbage	dozen	1 6 0 0	Potatoes	cwt.	4 0 5 0
Capicums	100	1 6 3 0	„ Kidney	cwt.	4 0 5 0
Carrots	bunch	0 4 0 0	Rhubarb	bundle	0 2 0 0
Cauliflowers	dozen	3 0 4 0	Salsafy	bundle	1 0 1 0
Celery	bundle	1 6 2 0	Scorzoneria	bundle	1 6 0 0
Coleworts	doz. bunches	2 0 4 0	Seakale	per basket	1 6 2 0
Cucumbers	each	0 4 0 6	Shallots	lb.	0 3 0 0
Endive	dozen	1 0 2 0	Spinach	bushel	3 0 4 6
Herbs	bunch	0 2 0 0	Tomatoes	lb.	1 0 2 0
Leeks	bunch	0 3 0 4	Turnips	bunch	0 4 0 0

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi ..	dozen	9 0 to 13 0	Ferns, in variety ..	dozen	4 0 to 18 0
Arbor vitae (golden)	dozen	6 0 9 0	Ficus elastica	each	1 6 7 0
„ (common)	dozen	6 0 12 0	Foliage Plants, var.	each	2 0 10 0
Azalea	per dozen	24 0 36 0	Hyacinths	per dozen	6 0 9 0
Begonias	dozen	4 0 9 0	Lilies Valley	dozen	12 0 24 0
Cineraria	per dozen	9 0 12 0	Marguerite Daisy ..	dozen	6 0 12 0
Cyclamen	dozen	12 0 24 0	Myrtles	dozen	6 0 12 0
Dracena terminalis,	dozen	30 0 60 0	Narciss (various) ..	dozen	12 0 15 0
„ viridis	dozen	12 0 24 0	Palms, in var.	each	2 6 21 0
Erica, various	dozen	9 0 12 0	Primula sisensis ..	per doz.	4 0 6 0
Eucynmus, in var.	dozen	6 0 18 0	Solanums	per doz.	9 0 12 0
Evergreens, in var.	dozen	6 0 24 0	Tulips	per doz. pots	6 0 9 0

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Abutilons	12 bunches	2 0 to 4 0	Lily of the Valley, 12 sprays	0 9 to 1 0	
Arum Lilies	12 blooms	4 0 6 0	Marguerites	12 bunches	2 0 6 0
Azalea	12 sprays	0 6 1 0	Mignonette	12 bunches	4 0 6 0
Bouvardias	per bunch	0 6 1 0	Narciss, Paper-white bunch	0 4 0 6	
Camellias	blooms	1 6 4 0	„ White English, bunch	1 3 1 6	
Carnations	12 blooms	1 0 3 0	Pelargoniums, per 12 trusses	0 0 0 0	
„	12 bunches	0 0 0 0	„ scarlet, 12 trusses	0 6 1 6	
Cbrysanthemums 12 bunches	0 0 0 0		Roses	12 bunches	0 0 0 0
„	12 blooms	0 0 0 0	„ (indoor), per dozen	1 0 2 6	
Cornflower	12 bunches	0 0 0 0	„ Tea	dozen	2 0 4 6
Cyclamen	12 blooms	0 4 0 9	„ red (French) dozen	2 6 3 0	
Dahlias	12 bunches	0 0 0 0	Parm Violets (French)	6 0 7 0	
Epiphyllum	doz. blooms	0 6 0 0	Pointsettia	12 blooms	0 0 0 6
Eucharis	per dozen	4 0 6 0	Primula (single) per bunch	0 4 0 6	
Gardenias	12 blooms	12 0 24 0	„ (double) per bunch	1 0 1 6	
Hyacinths, Roman, 12 sprays	1 0 1 6		Stocks, various 12 bunches	0 0 0 0	
„	12 sprays	4 0 6 0	Tropeolum	12 bunches	1 6 2 0
Lapageria, white, 12 blooms	2 0 4 0		Tuberose	12 blooms	2 0 4 0
Lapageria, red	12 blooms	1 0 2 0	Tulips	doz. blooms	0 6 1 0
Lilium longiflorum, 12 blms.	0 0 0 0		Violets	12 bunches	1 6 2 6
Lilac (white), French, bunch	6 0 8 0		„ Ozar, French, per bunch	2 0 2 6	



REFORM IN AGRICULTURE.

WHAT is to be done with our farms under the depression? This is a question often asked—more often answered, for we are told repeatedly by those lookers-on who are said to see most of the game, that we have only to do this or that in order to overcome our difficulties. Said a farmer of the old school after listening to a long speech about possible improvements in agriculture, "It's all bosh, what we want is better prices for our farm produce." Of course we want better prices, but with the stern fact before us of increasing foreign competition, we

can have no reasonable hope of getting them. Nor dare we hope for full relief from Government, no matter what party may be in power. It is possible that the heavy burden of taxation now laid upon the land may be lightened, and rents must be brought down so as to bear a just and fair proportion to the price of farm produce. But we may as well cry for the moon as to agitate for State intervention in the form of protection or bounties.

Landlords have met their tenants' cry for help by reduction after reduction of rent, yet, notwithstanding this, farm after farm has been thrown upon the landlords' hands in wretched plight; wet, foul, and poverty stricken, it requires a heavy expenditure before the land can be brought into that clean, dry, fertile condition necessary for the successful cultivation of any crops. It is not only to arable land that this applies, but also to grass land, which is so frequently found devoid of any cultivation whatever. The falling in of farms in this way compels the landlord to take them in hand, it may be indirectly through his agent, but he undoubtedly has to find capital for the undertaking. Well will it be if under the circumstances the agent is a man of capacity and discretion. To enable him to rise to the emergency and to turn it to full account he must be energetic and have had a wide experience of farming in different parts of the country. Good sense, combined with the sound experience of middle age, should enable him to come to the front now and assume the post of a leader in agricultural reform. That is the point. We have only to show farmers how by better cultivation better crops may be obtained, and we shall find them ready enough to follow leaders who not only talk but act.

In carrying out such a reform there must be no lavish expenditure, not one penny must be spent wastefully. Our course of action must be well considered, every plan being matured before it is put in operation, cause and effect taken fully into account, and due allowance made for the influence of weather upon our work. Before all things we must see that the soil is brought into thorough cultivation. Drainage, mechanical division, cleanliness, fertility, timely cropping, pure seed, the saving of each crop and turning it to the best account, economy of cropping as well as of labour, are each and all matters to be regarded as indispensable to success. There is the soil before us, What do we know about its nature, condition, or requirements? How can we manage it so as to obtain at least a full annual crop from it? Regarding it as we do as a medium for conveying food to plants, we are bound to ascertain how best to store it with such food. We must go farther than this, and learn what is the best kind of plant food to use, how and when to use it to most advantage. Surely the offensive odours given off by a heap of farmyard manure ought to convince the most stolid intellect that there is much waste in the use of plant food in such a form. But this simple fact cannot be realised till a farmer knows in what form plants absorb food. Assuredly he ought to possess such knowledge, for without it how can he work with economy and sureness of purpose?

Economy of labour must have more attention in our scheme of cropping. By having mixed layers of Clovers and strong-growing Grasses for three or four years instead of annual Clover layers we effect a material and permanent saving of labour, and we get heavier crops of better forage. By using chemical manures for such layers we keep them in full vigour, and yet avoid the costly process of the manufacture and carting of farmyard manure upon them. Once established upon a farm, and brought into the

regular course of cropping, such layers enable us to work with a reduced staff both of men and horses. It is the heavy labour account and the food for horses which tell so heavily upon farmers.

Improved cultivation of permanent pastures is another matter pressing for immediate attention. One can tell at a glance, even in midwinter, if pasture is neglected or not. Many a neglected meadow has it been our lot to reclaim, and we know no part of farm work more interesting, and none that repays the farmer better. Relieve the grass land of superfluous water, store it with fertility, either by the application of chemical manure, or, better still, by judicious sheep-folding, take care that manure is applied at least once a year, and the reward is not only speedy and sure, but it becomes greater year by year, and we have found that really fertile pasture is much less affected by unfavourable weather than that which is neglected and poor.

WORK ON THE HOME FARM.

The long spell of fine weather has led to a change in some of our plans for cropping. Care was taken, first of all, to get in the spring corn; this done, attention was given to foul land left to be cleaned if the weather proved favourable, and then to be sown with roots. This would have been an addition to the regular root crop with which we could very well dispense. We shall now be able to do so, for the land is clean, the twitch is burnt, and Barley takes the place of roots. The main crop of Barley is sown, but we have many acres yet to sow on land where sheep are now folded on roots. The ploughs and drills follow the folds closely, and we shall doubtless see the beneficial effects of the folding in the Barley. The White Turnips are almost finished; there is a capital piece of Swedes to follow, then comes the Rye, which is so forward and strong that we can begin folding upon it even before the Swedes are finished, should we wish to do so. After the Rye comes the Winter Tares, of which there is an excellent plant, and by the time the flock has got through the Tares the lambs should be ready for sale. Very late Swedes will be followed by Oats, which may be sown later than any other corn crop. The Rye will be followed by White Turnips and Swedes to be left out on the land for folding next spring, and the Winter Tares will be followed by Rye. Winter Tares, we may add, are usually sown after Mangolds. It will thus be seen that our cropping for the flock is both sure, simple, and efficient. By it we are practically independent of grass land till after the haying, and even then two or three crops of Spring Tares would carry on the flock till late in August. Land ploughed into ridges last autumn is now being got ready for Mangolds, which we hope to sow early in April. If farmyard manure is used it is put in the furrows and covered as quickly as possible by drawing the double-breasted plough through the middle of the ridges. Never have we known the soil of all kinds to be in better order at this season of the year; even upon our heavy land the surface is like a bed of ashes, and much good was done before sowing the corn by giving it an extra turn or two with the harrows, so as to bring perennial weeds well upon the surface. By doing this we both clean the land and avoid much hoeing subsequently among the corn. Some faulty pieces of Winter Beans have had a bushel or two of Peas per acre sown among the Beans in order to insure a full crop upon the whole of the land.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.					
		Barometer at 34" and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		Rain.
			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1887.	March.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
	Sunday	6 30.200	38.0	37.3	N.E.	37.4	49.9	33.9	71.2	34.4	—
	Monday	7 30.292	38.2	35.4	N.E.	37.8	43.3	31.2	52.2	28.2	—
	Tuesday	8 30.190	39.9	34.0	E.	38.2	42.3	33.2	49.8	37.2	—
	Wednesday	9 30.045	37.8	35.3	W.	38.3	43.2	35.9	52.1	35.7	—
	Thursday	10 30.104	38.8	38.1	N.E.	38.4	47.6	35.6	70.2	32.7	—
	Friday	11 30.036	32.8	32.1	N.E.	38.2	44.4	27.8	54.8	21.7	0.266
	Saturday	12 29.797	31.6	33.6	N.E.	37.5	41.8	32.3	84.0	25.2	0.011
		30.035	37.0	35.7		38.0	41.5	33.8	62.0	30.4	0.277

REMARKS.

6th.—Cloudy early, bright at mid-day, solar halo in afternoon, clear night.
 7th.—Cloudy all day.
 8th.—Overcast throughout.
 9th.—Cloudy morning, fair afternoon but without sunshine.
 10th.—Fine all day, sunshine in afternoon.
 11th.—Foggy till eleven, then dark with high fog, clearing again towards noon, sunshine in afternoon.
 12th.—Wet from 2 A.M. to 6 A.M., wet snow from 8 A.M. to 9.30 A.M.; gradually cleared and sun began to shine about noon, bright afternoon and evening.
 With the exception of about eight hours in the early morning of Saturday a rainless week, but with less sunshine than might be expected. Pressure still high and temperature low, though about 3° above that of the preceding week.—G. J. SIMONS.



COMING EVENTS

24	TH	Royal Society at 4.30 P.M.
25	F	Quekett Club at 8 P.M.
26	S	Crystal Palace Spring Show.
27	SUN	5TH SUNDAY IN LENT.
28	M	
29	Tu	
30	W	Society of Arts at 8 P.M.

AN EIGHT-MONTHS SUPPLY OF BROCCOLI.

HAVING been requested to state "what varieties of Broccoli to select, when to sow the seed, and how to grow the plants so as to maintain a succession of heads from the time Cauliflowers fail until they are again available," I cannot do better than record my experience by which the desire indicated has been attained. Without being biased in any way I shall adopt the catalogue style, dividing the sorts into sections, and detailing the treatment necessary or advisable in each case. It will be seen by the heading that I intend to keep closely to the text furnished, as in reality it is only necessary to have Broccoli rather more than six months in order to meet the Cauliflowers; but we prefer to have them longer in season, for reasons that will become apparent as we go on.

September to February inclusive. This is rather a long season for one variety to cover, but Veitch's Autumn Self-Protecting is fully equal to the emergency, and on the whole may be said to be the most valuable introduction of late years. Seed sown late in August or early in September will give a supply of plants suitable for wintering in frames in common with Cauliflowers, and being duly planted out in the spring on good well-manured land the majority will yield grand white heads hard to distinguish from Autumn Giant Cauliflower, and in close succession to the latter, also autumn-sown. For ordinary purposes there is no necessity for this extra trouble, but those who are in the habit of exhibiting collections of vegetables in August and September may, if they give the plan a trial, be amply rewarded for their pains. Our principal sowing of this variety is made in a frame early in March, but those who require fewer plants may raise them either in pans or boxes of common soil, taking care to well harden off the plants before they become drawn and weakly. As soon as they are fairly strong, or about 4 inches high, the best of them are pricked out 4 inches apart on a warm border, the soil of which is fine and light. They may need a little protection for a few days, and should be finally transplanted when strong enough to take care of themselves. These we usually plant between the rows of early Ashleaf Potatoes, the latter being disposed 3 feet apart. They are planted with a trowel, and if they have been moved carefully they soon grow strongly. When the Potatoes are lifted the soil is well worked up to the stems of the Broccoli, this steadying and otherwise materially assisting them.

Late in April or early in May more seed is sown on an open border, and the plants obtained are placed out on warm borders or on high ground in rows 30 inches apart and 2 feet asunder in the rows. Being a comparatively tender variety it is almost useless to plant it in cold

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positions where an early frost might greatly injure it. We commence cutting from the first raised plants early in October, and from one large breadth the supply can be drawn sometimes till late in December. To be certain of a continuous supply, however, directly severe frosts are imminent, or say late in November, all the most advanced plants should be lifted and stored closely either in frames or cold houses. We have a large pit in a second early vinery, and this being filled early in December with Veitch's Broccoli fully grown and ready for forming heads, these soon root strongly in the rich soil given them, and afford us a continuous supply of valuable heads until well into February. It is during the midwinter months that Broccoli heads are most scarce and most in demand, hence my dwelling at length upon the subject. All cannot dispose the principal portion of their stock in a house, but in most gardens some pit or frame can be devoted to them from November until February, or a rough frame might be extemporised for their protection. Prior to the introduction of the Cauliflower like Veitch's Autumn, the White Cape, also a delicate variety, was sown in April and again in May, and the majority of the plants being lifted and stored in frames did good service. No dependance can nowadays be placed on the stock of this variety, and we have ceased to grow it. Webb's Autumn treated as advised in the case of the White Cape has done us good service.

Snow's Winter White, if sown early, will hereabouts grow to a great size, but the majority of the heads are useless monstrosities. We now sow the seed early in May on an open border, the plants resulting being put out on firm fairly good ground and frequently in succession to early Peas. Under this treatment they make sturdy hardy growth, and if part of the batch are lifted and stored as soon as space can be cleared of the old stumps of Veitch's Autumn, a good succession will be maintained even in such a winter as we are passing through. Should the winter be mild Snow's ought to be available in the open ground in February and March. Osborn's Winter White is not hardy enough, otherwise we should grow it extensively. It may be raised in the open ground in March and April, and being of neat growth may be planted in 2 feet apart and rather closer in the rows. It is in season during February and till April, according to the weather experienced, and the quality is good. This sort also pays for lifting.

March to June. Some time in March or early in April seed should be sown of sorts that are required for use in about a year, for this is something near the time the majorities of varieties are growing. At different times we have had Webb's Perfection, Cooling's Matchless, Carter's Mammoth, and Veitch's Spring White available from the beginning of March till the end of the month, but this year all are later in heading in. I mention so many varieties in order to meet the seed lists of as many readers as possible. We find one variety ample, and prefer Veitch's Spring White. With us it is quite hardy, and we shall commence cutting from it by the time this is in print. To succeed this and for affording a long succession, sometimes lasting from the middle of March till May, we have the invaluable Leamington. The seeds of this variety, in common with either or all of the just mentioned sorts, may be sown in the open ground thinly, either in drills or broadcast, the aim being to secure as many sturdy plants as possible, these invariably doing better service than those long, weakly plants too often placed out. Penzance Early White is sometimes included

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in the lists recommended for spring use, but it cannot be depended upon, a moderately severe frost killing it. During May such excellent varieties as Cattell's Eclipse, Wilcove Improved, Champion Late White, Veitch's Model, Ledsham's Latest of All, and Late Queen are usually at their best. We confine ourselves to the three last named, and could dispense with Ledsham's. Early in May we find the best time to sow the seed, as if sown earlier the plants are liable to spoil in the seed bed, the site for them not being at liberty, while if sown much later they do not generally grow so large as could be wished.

As all the Broccoli in the March to May section are somewhat similarly treated, we will also consider them together now. It is a mistake, as many have this winter found to their cost, to plant on either very loose—say newly trenched ground—or on very rich soil. In such positions they certainly make rapid strong growth, but plants thus grown cannot withstand a severe frost—their stems being the most vital part—and a great loss may easily result. The only way to save such overgrown plants is to heel them in with their heads to the west, and the stems well covered with soil. This must be done early in November, and if properly carried out will save the majority. As, however, we do not follow this practice, I shall leave that for others to enlarge upon who may have been successful in saving their breadths in such or somewhat similar a manner. In order to be certain of a good breadth of Broccoli in variety, it ought always to be planted in a good open position, and in succession either to Strawberries, Beans, early or second early Peas, Spinach, Lettuces, or any crop other than any member of the Brassica tribe, that can be cleared off in time. The ground having been well manured for these will be quite rich enough for the Broccoli, nor is it advisable to dig it. Planting in holes formed with a crowbar answers very well in some instances, but we prefer to draw drills with a heavy hoe, filling these with water, or liquid manure if procurable, and in a few hours the planting can easily be done with a trowel. It is also frequently advisable to water the seed beds a few hours prior to lifting the plants. In this manner sturdy well-rooted seedlings can be put out, which will soon take to their fresh quarters and gradually develop into strong yet dwarf plants. I should add our distances are 30 inches from row to row, and 2 feet apart in the rows. We have several hundred plants treated as above advised that have escaped destruction by severe frosts, and I believe form the only good breadth in the neighbourhood, the complaint of total losses by frost being very general. The least injured of all is Miller's Dwarf White, this variety being naturally of a sturdy habit; but the heads, which are fit for use in May, are usually very inferior to the other late sorts I have named. It ought to be grown in all the coldest localities.

The latest supplies. In many districts Cauliflowers are not fit for cutting before the middle of June, and if Broccoli is to last until that time a little extra trouble must be taken with it. Doubtless they might be kept still later, or to near the end of June, but not hereabouts. Since the introduction of Late Queen and Latest of All the work of retarding has been much simplified, but one of the best gardeners I am acquainted with usually cut Broccoli in bygone years as late as the middle of June, with only the good old Cattell's Eclipse to work with. His method of culture I cannot do better than give in his own words:—"The seed was sown thinly the first week in June, the plants being eventually put out in firm ground and in an exposed position. In November they were all dug up and relaid in a north border, a supply of small

valuable heads being cut from them till the middle of June." We cannot imitate this practice, as unfortunately our inside north borders are at the bottom of the garden, a severe frost invariably destroying any member of the Brassica tribe we have yet planted or laid in there. Another friend in charge of one of the largest gardens in the West of England also annually lifts a great number of Broccoli plants and relays in a north border. In addition to the late varieties, he usually lifts a quantity of Leamington, and in this manner prolongs the season of this excellent sort till late in May. Our latest supplies of Broccoli will be drawn from June-raised plants placed out in succession to Strawberries in one of the centre quarters. These have not grown to a great size, but they have kept their foliage better than those raised earlier and planted on higher ground, and will give us many useful heads. Large heads are not wanted only for the markets, most employers of gardeners preferring neat close heads about the size of a cricket ball. I hope to have Model later than usual, this being the favourite variety while in season. Its close conical heads are invariably perfectly protected, and therefore of good colour as well as quality.—W. IGGULDEN, *Somerset*.

ROSE-GROWING FOR BEGINNERS.

(Continued from page 212.)

GROSS SHOOTS.

THESE come under the head of "disbudding," for the amateur who closely watches his plants will detect them while in the young state, and if necessary, remove them before they do any injury to the plant. Now, to return for a moment to fig. 34. The two thick black shoots there look remarkably like gross shoots. If all the other shoots on a plant were as old as those in this figure are at the base—it will be noticed that these are more than two years old—and these two shoots appeared early enough in the season to ripen at the lower part, then I should leave them to grow and ripen, and at the next following pruning time I should cut away the older shoots. But, as a rule, these gross shoots come up late in the year, and often appear on plants already well furnished with young and vigorous wood. They draw all the nourishment away from the rest of the plant, and grow quickly to an enormous size; but when winter comes, the wood not being ripe, is destroyed, and the plant has had all the work of growing them—and all at the expense of its permanent part—for nothing. It is necessary, therefore, to watch for these gross shoots during the season of growth. If they come up early, and are required where they appear, let them grow; but if they come late, or where there is already an abundance of young healthy shoots, then let them be removed at once. The same gross shoots often appear on the heads of standards or on climbing Roses, and the above remarks apply also to these plants. In the case of a standard, if the head requires to be filled up, and the coming shoot seems well placed for the purpose, by all means let it remain on the tree. In the case of a climbing Rose, there may be a piece of bare wall to cover; but in every case, if there be not time for the shoot to ripen, off with it! It is no loss to the plant, for if left on, it is at the expense of the other shoots, while, if it be removed, its substance will go to swell and improve the remaining branches.

RENOVATING AN OLD PLANT.

Sometimes cases arise where one has a lot of fine old trees, perhaps Gloire de Dijon, or other vigorous growing varieties, with shoots 10 or 12 feet long. To transplant these would be to spoil them, and though in such cases I might recommend fresh plants being put in, there are many who would much prefer keeping their old favourites. I will endeavour to give some ideas how this may be accomplished, and how these old plants may be made to renew their youth. One is a plan I read of some time ago. This is to procure a thick iron bar, and drive it into the ground a couple of feet or so, making holes in this way all round the base of the plant. These holes are then to be filled in with a mixture of various manures and soil:—I do not think anything better than my ideal Rose soil could be got for the purpose. The roots are brought into contact with this new soil, and a vigorous growth is the result. A liberal allowance of liquid manure, not put on in too strong a state would probably complete the cure. I never tried this plan, but I should say

it would be successful. There are two objections to the plan, however; one is that we cannot cut back the tap roots, and the other is that we only renew a small portion of the soil. The other plan, although it takes more time and is more troublesome, is, in my opinion, the better of the two. This is to raise a portion of the roots, say one side, or half of them one season, and the remainder the following season. The roots should be loosened and lifted up, and the whole or as much as possible of the soil removed and replaced with new. After the roots have been shortened they should be put back and the soil made firm round them. This might be done any time when the plants are at rest, but early autumn is the best time for the operation. The new roots may, and probably will, form before the ensuing winter. An easier method of doing nearly the same thing consists in cutting a trench round the base of the plant—not too close—half way round one year, completing the circle the next. The trench may be about a foot wide, and as deep as the roots seem to go. The roots being cut off where they come into the trench, grow vigorously in the new soil with which the trench should be refilled. But here again the weak point is that we cannot cut back all the tap roots.

GRAFTING ROSES.

There are tricks in all trades, we know, but I think that the greatest amount of the trickery in Rose growing occurs in the grafting, or rather I ought to say in the sending out in many cases of such poor rubbish, such weak and miserable specimens of

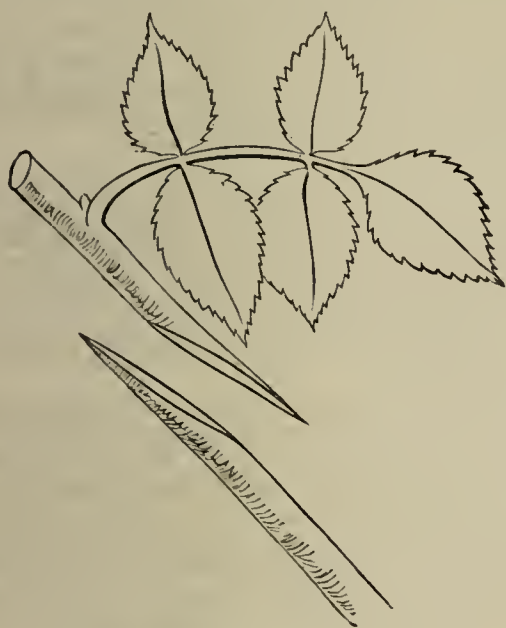


Fig. 41.—Grafting Scion and Stock.

plant life, that anybody who knew what he was about, if asked the question, would say, without one moment's hesitation, that the pot was by far the most valuable part of the whole thing.

Grafting proper is not a business that many beginners can successfully carry out, but still one may wish sometimes to buy grafted plants; and such being the case, I think the beginner should know something of how it is done, and so I propose now to tell him.

There are two ways of grafting Roses—a right way and a wrong way. I am going to give the beginner a description of both. To start with, let us suppose it is early spring, and you step with me into the garden. Here is an old standard Rose tree, which, like most other standard Rose trees of its age hereabouts, has died away at the top. Round the base you see there are a plentiful crop of suckers or thin briars about the thickness of a lead pencil; one of these we secure with a bit of root to it. Now we step into the greenhouse and cut a growing shoot from a Rose in a pot, but we do not remove the leaves, as in budding. I cut the top of the stock diagonally, and I also cut a small piece off the branch of the Rose, with a bud and leaf to it, diagonally also. I fit these two together in such a way that the inner barks of both are in contact, and I bind the two firmly together with raffia. Now I put the lot in a small pot, and plunge it in strong heat, nursing it tenderly for a few weeks, keeping the light from it, syringing it often, and coddling it generally. In a very short space of time it begins to grow. It grows so rapidly that I have heard it said that plants are produced in six weeks; and such plants! Plants that carry failure in their very appearance. Plants that are worse than worthless; plants that are frauds, for they take up room, and prevent us utilising our space with plants that will grow. These will not. This is the wrong way to graft Roses.

Now for the right way. This little briar stock has been growing in this pot twelve months. On turning it out we notice that the ball is one mass of fibrous roots. I slice the top off, as before described, and I bind on a bud, and then plunge the little plant in heat; but note the difference. In the first case the plant had its roots to make, and its branches simultaneously. It had to grow at both ends at once—we know what burning the candle at both ends means. Here the roots are all provided to begin with; the plant is complete from the first. As soon as the bud begins to grow we repot into a larger size, the roots immediately grasp the new soil, and the plant begins to grow in earnest. Now, here a great heat is not detrimental—though it is just as well not to overdo it in that respect—because the plant is an established one, as far as roots go. (If the beginner have a greenhouse, a very instructive experiment, illustrating the effect of heat on old potted and newly potted plants, will be to grow two such plants side by side in heat; the result will be in the case of the old potted plant, success; in the case of the other, failure.) The latter-described system is the right way to graft Roses.

If I were going to buy grafted plants, I should certainly want to know whether they were grafted in the pots or not. Plants grafted as described in the first case will never do any good, it is contrary to common sense that they should; they may make a puny growth and bear a few small flowers, but they will never grow vigorously or well; they will gradually dwindle away and perish. The best way to buy all Roses, in pots or out of pots, grafted or budded, is by sample. If they look strong and healthy and are growing vigorously—I am alluding to the grafted plants now—you may depend upon it that they were propagated on the right system.

Grafting, no matter how carefully it is done, as a rule never produces the sound healthy plants that we get by budding. In the one case the bud is inserted under the bark of the stock, tied over, and in course of time the bark entirely grows over the cut, and the bud is as firmly fixed in as if it had grown there naturally. In the case of grafts the bud is simply tied on, and the bark unites sometimes on one side, sometimes on the other, and in some cases, if the job be well done, and the bud and stock accurately fitted, on both. But out of a thousand stocks and buds how many can be got to fit accurately? If the union of the stock and bud be potted below the surface of the soil, in all probability in a short time roots will be emitted from there, and if this be the case the plant will be much more likely to live and do well.

Grafting is only useful to the nurseryman. It enables him to cut up a new Rose—for which he has paid perhaps a guinea, perhaps more—to make the most of it, to multiply it quickly, and to distribute it among the amateurs at a much lower rate than he could afford to do if he adopted the slower, but at the same time surer, method of budding.—D. GILMOUR, JUN.

(To be continued.)

PEACH-GROWING UPON OPEN WALLS.

ANY remarks upon this interesting subject are perhaps open to criticism, but what I have to say is based upon practical experience. We will assume the trees are ready for nailing or tying, it is immaterial which course is adopted; in any case plenty of room should be left for the wood to swell. If nailing is resorted to, I advise all nails to be drawn and cleansed previous to their being used again. Often we see the old nails and shreds are allowed for years, and just the young growths nailed in, which practice is a sure way of keeping some of the many pests alive through the winter, and all who have not tried raffia as a substitute for shreds I should advise to do so, for when shreds are used, unless very narrow, the portion of the wood covered never ripens, and it is here that the wood often dies back. If raffia be used the matting should be just twisted round the nail and the branch brought to it; the trees look better and are less trouble to keep clean.

We have our trees covered with a double thickness of netting stretched over poles which rest on the top of the wall, and are placed 4 feet from the base of the wall, so that it enables anyone to walk inside and see how the trees are progressing from day to day. This covering will remain on till the fruit is set and the trees covered with foliage, after which time I consider they are safe. Strict attention must be paid to the trees as the flowers are falling, at which time the aphides generally attack. If such is the case the trees should be well syringed with the garden engine, with tobacco water and a little sulphur, for if the fly be allowed to gain a hold upon the young growth failure will undoubtedly be the result. On the other hand the trees should be disbudded, and that with a careful hand. The wood should be laid in regularly, thinly, and systematically, allowing only such to remain as is wanted. Nothing is worse than to cross the wood or lay it thickly, for under such conditions the trees cannot be kept clean. After this be done little is required than to keep the trees right, provided they are syringed at least four times a week, but if possible they should be done every day.

Thinning the Fruit.—This also requires judgment, and must be done carefully, selecting those which are well placed and upon the most

mature portion of the tree. The final thinning should not be done till after the fruit has stoned, and by the general condition of the trees. Let this be your guide as to the quantity to remain after the stoning process. See that they receive plenty of stimulant in the way of mulching; liquid manure and an occasional supply of soot water will improve the foliage, working upon it like magic. All laterals should be taken off and the trees examined often. This is the way to keep Peaches always in a presentable condition. When the fruits commence colouring water should be gradually diminished, but after the fruit has all been gathered keep the trees well syringed. The sorts I would recommend are good and few—Alexandra, Early Alfred, A Bee, Grosse Mignonne, Royal George, Barrington, Walburton Admirable, Salwey. Nectarines—Elruge, Lord Napier, Violette Hâtive, Pine Apple, Victoria. These are all good and useful varieties. I had a good crop of Sea Eagle last season, fine and handsome fruit, but in flavour very inferior.—W. A. COOK, *Holme Wood*.

PLANTING AND CUTTING BOX EDGING.

To my mind there is no edging for walks, particularly in the kitchen garden, so suitable as Box, although some object to it on account of its harbouring slugs, which it does if allowed to grow wild, as is sometimes the case. In some gardens it is allowed to attain a height of 10½ inches and half as much through; but if managed in a proper manner nothing makes so neat an edging. It has the advantage over edging tiles of its natural green colour, which harmonises well with its surroundings, be they gravel on the paths or the crops within the quarters. It certainly requires a good deal of time to keep it in order, but if well and properly planted to commence with it need not be objectionable on that account. Where Box is used March is as good as any time for planting it. There is a right and a wrong way, even in planting an edging of Box. If treated as follows it will be found to give satisfaction. I find that a little time spent upon it in the first instance is well repaid in after years.

Let us suppose, then, that a walk is to be made in the kitchen garden running alongside the border next the wall, and consequently parallel with it. The first thing to be done is to fix upon a certain level at a given distance from the wall, according to the width of the border, which varies according to circumstances. Whatever width the border is to be, the farthest end of it must be the same distance from the wall as the end near at hand, and the same level must be maintained with the aid of the square edge and spirit level by taking a certain course of bricks in the wall as a guide. At each end from this the same level should be found in the position where the Box is to be planted from the wall by the instruments named. If the border is to have a fall from the wall to the path this must be decided upon, and noted at each end. In most cases this is neither necessary nor wise, because complications may occur in the intersection of the cross walks. The levels at the extreme ends having been decided upon, the intermediate ones are easily obtained with the use of T rods. The opposite edge of the Box in the same walk must be of the same level, no matter the width of the path; then proceed to dig the ground to the depth of a foot where the Box is to be planted, breaking the soil well and rejecting any stones which may come in the way. If the soil is of a loose character tread it firmly and rake it smoothly.

Now stretch a line in the exact position in which the edging is to stand, and with a clean sharp-edged spade chop out a trench close to the line about 6 inches deep in a perpendicular manner. This should be done carefully, because much depends upon it whether the Box will be planted in a straight line or not; therefore, any pains bestowed on freeing the soil from stones is well rewarded. Where the land is of a stony character it is a good plan to sift the soil forming the edge. If the trench has been carefully cut the line will no longer be of service to the planter.

The next thing to be done is to prepare the Box for planting. Pull it into pieces; every piece with a root attached to it will grow. It should be cut into uniform lengths of about 4 inches, and care should be taken to keep the top level. If it is flat all the better for the planter, as it lies closer to the trench. With the right hand place the Box in position, and while the left hand holds it there, with the right one place a little soil over the roots. If the operator kneels on the right knee the left foot is conveniently placed to keep the soil firm on the roots, as the left foot moves along in the trench as the planter goes. The trench should then be filled up to the proper level, and trodden very firmly; this tends to keep the Box straight. Some may think these details needless, but I have found them important, and I have tried various ways.

The proper method of keeping the edgings in good order when established requires much attention. If well managed at the end of eight years it should not be much larger than when planted. To keep it thus dwarf it will require an annual clipping, an operation which should be done early in April; this I consider the best time,

all things considered. Some do not cut the Box until July. This is rather late, because the growth made after the clipping is not sufficiently hard to stand severe frost the following winter. The consequence is the young points of the growth are damaged, which gives to the edge an unsightly brown appearance during the dull days of winter, and at a time when the edgings of paths should look their best, when they are supposed to be green. If allowed to go two or three years without cutting it gets bare at the base, and the wood becomes hard. It is then more difficult to cut, and takes longer to get green again, as the old wood does not break so freely into growth as the younger shoots do. Some cut their Box with a scythe, commencing on one side and returning on the other; but this is not a good way, not equal to the one I will describe. First stretch a line close to the Box at a given height from the ground, say from 2½ inches to 3 inches, then with a pair of hedge shears cut off the top down to the line. Upon the flat top thus formed fix the line straight from end to end, pulling it tight; then with a pair of shears, such as are used for shearing sheep, cut the Box on one side in a slanting direction from the line to the gravel. Repeat this operation on the other side, and the result will be a wedge-shaped edging at the end of eight or ten years 2½ inches wide and 3 inches high. This I consider the best way in which to trim edgings of Box.—E. MOLYNEUX.

RATING GREENHOUSES IN NURSERIES AND MARKET GARDENS.

A DECISION of great importance to market gardeners and nurserymen was arrived at in the Queen's Bench Division of the Supreme Court of Judicature on Saturday last, the 19th inst. by Mr. Justice Day and Mr. Justice Wills. In 1885 we published the following reply to a correspondent,—"L. B."

You ask if it is "customary or right to assess nurserymen's greenhouses for the poor rates." We suspect it has become largely "customary" by many nurserymen paying the rates, but the "right" to claim them is another matter. Lord Kenyon decided there is no more right to assess the greenhouse of a nurseryman than the stall of a cobbler, because both are equally necessary for obtaining a livelihood. This is an important question that should be tested in a supreme court, and the case for nurserymen appears good, though obviously no individual can be expected to act alone, but by a combination of effort the cost would be scarcely felt, while the gain might be great and permanent.

Mr. G. Purser of Worthing has, with the co-operation of friends, "tested the matter in a supreme court," and merits the thanks of commercial horticulturists. We do not anticipate that the decision in question will affect the position of private individuals who merely sell the surplus produce of their gardens; but the course of growers of plants and garden produce as a means of livelihood is now rendered clear, and it will be their own fault if they submit to the full rating as imposed by local assessors or surveyors. We take the following abridged report of this important test case from the *Times* :—

PURSER V. THE WORTHING LOCAL BOARD.

This case raised the question whether glass houses and greenhouses in which fruit, flowers, and vegetables are grown for market are to be rated at their full rateable value, or only at one-fourth value by virtue of sub-sec. 1 (b) of sec. 211 of the Public Health Act, 1875, which provides, *inter alia*, that "market-gardens or nursery-grounds" shall be assessed in respect of one-fourth part only of the net annual value. The special case found that George Purser, the appellant, was a grower of fruit, vegetables, and flowers carrying on business at Worthing and describing himself as a "market gardener and nurseryman," and that he was the occupier of a piece of land of about one acre one rood upon which were sixteen glass houses or greenhouses of various sizes, used by the appellant for the purpose of growing Tomatoes, Cucumbers, Grapes, flowers, &c., in the course of his business. The appellant had been rated at the full rateable value in respect of this property under the description of "greenhouses."

Mr. Arthur Charles, Q.C. (with him Mr. Forest Fulton and Mr. A. Glen), appeared for the appellant, and, having stated the point, was stopped by the Court.

Mr. Lumley Smith, Q.C. (with him Mr. English Harrison and Mr. Bartley Dennies), for the Local Board, contended this was in no sense either a market-garden or a nursery-ground. This was a new industry which was developing extensively on the South Coast, where in many places acres of ground were covered with glass houses in which plants were not grown in the ordinary sense, but merely put in to be forced. The appellant's premises were covered in this way, with the exception of a few yards of ground, for which he was not rated. All the greenhouses rated had brick walls, and were attached to the soil as much as any other house is. The plants, though in some cases they drew part of their nourishment from the ground, were mainly nourished within the houses by artificial water and artificial heat, and in three of the houses the entire soil was artificial. [Mr. Justice Wills.—There may be artificial soil in an open market-garden.] [Mr. Justice Day.—Is a mere forcing frame rateable?] Yes, if it rests on brickwork. [Mr. Smith cited as analogous cases, "South Wales Railway Company v. Swansea Local Board" (4 "E. and B." 189), "Newport Dock Company v. Newport Local Board" (2 "B. and S." 708), and "The Queen v. Midland Railway Company" ("L.R." 10, Q.B., 789.)]

Mr. Justice Day said he did not doubt for a moment that this ground

was within the exemption and should be properly rated on the one-fourth scale. His Lordship considered this a market-garden. It was a place used to garden in, and gardening was a term commonly applied to agricultural production of any kind on a small scale. His Lordship could not see that the garden was less a garden because it was wholly or partly under glass, or otherwise protected from the weather, or because it had walls or a roof. It was still a garden, and in this case it was a market-garden, because it was used for producing fruit, flowers, and vegetables for market.

Mr. Justice Wills was of the same opinion, and the rate was ordered to be amended accordingly.

CULTURE OF ASPARAGUS.

As the result of the fine Asparagus annually imported from the neighbourhood of Paris the culture of this vegetable has received more attention in British gardens during recent years. Asparagus was formerly planted much too closely, consequently the roots became matted and the shoots small within a few years. Good practitioners nowadays set the plants widely apart in deeply trenched and liberally manured ground. With regard to the kind of soil most suitable, I may say that I have seen first-rate Asparagus cut from plants growing in a piece of cultivated bog in Ireland, whilst from plantations made in strong Worcestershire loam enriched with manure, at Madresfield Court, Mr. Crump, Earl Beauchamp's excellent gardener, secures the most satisfactory results. Mr. Crump grows his Asparagus in the new kitchen garden in rows about 3 feet apart and the same distance from plant to plant in the rows. Therefore the stems of the plants thus grown resembled, in point of size, stout walking-sticks when I saw them the end of August last. However, as all gardeners cannot afford to give so much room to the plants as Mr. Crump does, I will enumerate two or three successful ways of planting Asparagus and leave the readers of the Journal to adopt which they please.

The ground having been previously trenched to a uniform depth of from 2 to 3 feet, according to its nature and depth, and a liberal allowance of good manure incorporated with it in the process of trenching, open trenches 5 feet wide and 9 inches deep, leaving alleys 2 feet 6 inches wide between them. In these trenches make three rows of hillocks a couple of inches high and 3 feet apart, the first hillock being made at 3 feet from the end, and those on each at 18 inches from the central row and from the end of the trench, thereby affording more room to the plants to grow than if they were planted opposite to each other. On the hillocks arrange the plants, spreading the roots out in every direction, covering them with a few inches thick of pulverised soil, afterwards filling up the intervening spaces, and spread on a surface of short dung to the thickness of a couple of inches. In planting, press the soil firmly about the roots with the hand, and, if practicable, the work should be done in showery weather as soon as the crowns have pushed into growth early in April; otherwise water should be given through a rose to settle the soil about the roots. Insert a yard long flower stick 9 inches into each mound to which secure the young plants as soon as they require support from the effects of wind.

The second method of procedure is to mark off the necessary number of beds 4 feet wide, with alleys 2 feet wide between them. Then draw two drills about 4 inches deep at 15 inches from the side of the bed, which will give a space of 18 inches between the two rows, and in these plant the roots 18 inches asunder in the row, taking half of them in one hand and half in the other, with the crown slightly raised; in other respects treat the plants as recommended above. For the supply of plants for forcing plant in rows 15 inches apart and the same distance asunder diagonally, so that those in the second row stand anglewise to those in the first, and so on with each succeeding row. This method of planting will, as already stated, give the plants more room. Should a spell of dry weather follow, frequent supplies of water should be given until the plants are established.

Summer and autumn treatment consists in keeping the beds free from weeds, and, in the case of established plantations of Asparagus, free from seedling plants, which should be pulled up as soon as they appear. As soon as the cane-like stems are ripe cut them off close to the ground, saving some containing seed, suspending them in small bundles and in a dry shed for shelling and washing out during inclement weather; then draw 3 or 4 inches thick of the surface soil off the bed into the alleys, and place on instead a like thickness of the best animal manure at command. This should be covered with 3 or 4 inches thick of soil from the said alleys early the following March, breaking it fine as the work proceeds, and afterwards rake over the surface of the bed with a medium-sized iron rake.

CUTTING ASPARAGUS.—This must be done with care, otherwise a large percentage of the heads will be destroyed before they appear through the soil. The knife should be worked carefully down to the base of the stem to be cut, so as not to injure any of those undeveloped surrounding growths. We cut when the stems are

7 or 8 inches long, the top inch or two (which appears above the soil) being green and the remainder blanched; the heads washed, sized, and tied up in bundles, then be stood on ends in saucers containing a little water in a cool shed or house till required for use.

RAISING YOUNG PLANTS.—Sow the first week in April in drills 2 inches deep and 12 inches apart, in light, rich, and sandy soil, to supply young plants for transplanting the following year in permanent beds, and also for supplying plants for forcing when three or four years old. Connover's Colossal is a good variety to grow. The seed should be sown thinly in the drills, the soil closed over with the feet, trodden, and afterwards be raked over with an iron rake, and the young plants resulting from this sowing should be kept free from weeds during the summer and autumn months.—
H. W. WARD.

THE PROPOSED GARDENERS' ORPHANAGE.

I DID not intend so soon again to encroach on your pages in reference to this subject, but as discussion is asked for I venture to supplement my former brief remarks.

It is gratifying to find that the proposed effort by the gardening subjects of Her Majesty is taking practical shape. It cannot be anything than becoming the position in every gardener to do his utmost, not only to prevent Mr. Penny's happily conceived scheme from falling through, but to make it a success thoroughly worthy of the occasion. At the same time the notion must not be entertained that the epistone can be laid on it without a united and most determined effort. Undoubtedly the greatest difficulties lie in collecting a fund sufficiently gratifying and creditable, and not so much in administration after it is in existence. The advice to "first catch the hare," &c., is quite applicable here.

I hope every gardener will consider it a slight to his better feelings if he is not afforded an opportunity of contributing according to what he may consider his ability. In order to this the plans adopted to bring the matter distinctly under the notice of them, and all interested in horticulture, will require to be very comprehensive if the scheme is to be carried through with the success of which it is worthy. Let there by all means be as powerful and influential committees in London, Edinburgh, and in Dublin as can possibly be formed, with the London one for the heart of the whole. These three committees should make an effort to have branch committees formed in every county town and in every other town that can be looked upon as centres to a district, and an effort should be made for visiting every garden in the district, and canvass all concerned for their aid. Surely there is some gardener in the neighbourhood of every considerable town who would be willing at least to try and form such committees, and these individuals should be appealed to by the central committee.

Then nurserymen personally should be able to use great influence in the cause. They, above all, are in constant touch with all horticulturists, by correspondence at least, and could without much straining of their resources bring the matter before their customers. In collecting for the Gardeners' Institution there was not one nurseryman I appealed to in vain, and I think we may fully reckon on their help. Head gardeners are in the best position for bringing the cause under notice of their employers, and surely nine-tenths of them could venture to do this without fear of repulse, to say the least, and in most cases it is to assumed with success. There is another class, and a very numerous one—too often ignored—that should be earnestly appealed to, and that could do very much for the scheme if they could be got to put their heart into the work for one week. I mean the under gardeners of the three kingdoms. They are personally quite as able, and I think will be quite as willing, to contribute their mite and collect, as are very many who hold head gardeners' situations at not much higher wages, but with many more calls on them.

Reference has been made by Mr. Goodacre and others to the purchase of land and the erection of suitable buildings. This is a matter more for subsequent consideration. But it ought to be well considered whether any such expensive investment should be attempted. We have in the Benevolent Institution now a stable and good stock for a sister branch, and it becomes a question whether it would not be wiser to administer the funds for an orphanage on the same lines as that on which the funds of the Benevolent Institution are administered. There are already orphanages and homes for children in thorough working order, and the proceeds of the Orphanage fund and its annual subscriptions could be directed to the placing of children in these orphanages and homes. The two branches could thus be worked together economically, and with far less complicated machinery than is necessary for land and building, &c.
—D. THOMSON, *Drumlanrig*.

I AM pleased to see by to-day's Journal that this most deserving scheme is likely to meet with a certain amount of support. I hope the Committee appointed to work out the details will not be too ambitious, for I, like "D. Deal," am rather afraid that a scheme requiring the expenditure of from £25,000 to £30,000, and an annual expenditure of some £3000, is more than can be accomplished in these hard times. I do not agree with those who would link this to the Gardeners' Royal Benevolent Society. Those who advocate this step, and who express their surprise at the small proportion of gardeners subscribing to the G.R.B.I., must remember that there are other societies equally deserving of the gardeners' support, such, for, instance, as the United Horticultural

Benefit and Provident Society, and the Leeds Gardeners' Society. If the Orphanage is to be united to the G.R.B.I., other men, who are doing equally well for themselves and society generally by supporting other deserving societies, will not be likely to join heartily in its support with the fact staring them in the face that the "Bairns" would be placed on the list by ballot similar to the pensioners," as Mr. Abbey puts it. No, I think it should stand on its own basis, and that a beginning be made with whatever money is subscribed, be it in ever so humble a way.

With regard to site I hope they will look further afield than the "London smoke." Why not settle on a piece of forest land that might be bought for a tenth of what would be asked for nearer London? or take on lease a small farm with a good old farm house on it, which might be altered and small cost to suit. Here the "Bairns" would have fresh air, can be supplied with plenty of fresh vegetables, milk, &c., &c., all very necessary to their welfare. I hope the scheme may be wrought out on a foundation that will deserve and receive the support of all gardeners.—R. INGLIS.

UNITY is strength, and there is no doubt that if all the gardeners, head and under, could be induced to work harmoniously together and subscribe, and continue the same yearly, a great benevolent object might be accomplished. But difficulties of a character present themselves, perhaps no more in this than in similar charitable schemes, in raising ample funds to start so deserving an institution and to maintain it afterwards. There may be no difficulty in reaching all the gardeners, but can they be induced to support such a worthy institution as the one proposed? I do not believe they can, or they differ widely, I might say nobly, from any other class of the community. I do not question for a moment that many willing and generous persons will come forward to render all the assistance in their power. These are ever ready to lend a helping hand in any good work. These, I hope, largely predominate amongst gardeners; but there may be many who are willing to give, but who are not in a position to do so, and therefore I do not believe one-half of the gardeners in the United Kingdom could be relied upon to subscribe 5s. annually, or half that amount. If we glance for a moment at the majority of the charitable institutions of a like nature we find that they are not supported by the majority, but are mainly sustained by a small minority. Those who give liberally and freely are appealed to for support to aid every object that may be started, whether charitable or otherwise, while the majority of the community escape without rendering the slightest assistance. They may be appealed to, and frequently are, but it is unheeded. If we contemplate for a moment the humane work of the Gardeners' Royal Benevolent Institution in striving to aid the disabled and distressed members of our craft, we cannot fail to be surprised at the lack of help and encouragement it has received from the class it is intended to assist. Had it not been for outside support it could never have accomplished the good work that it is doing.

With regard to the Orphanage, I hope that gardeners generally will put their shoulders to the wheel and subscribe their mite, and use influence with others to do the same. Funds ample for a "home" could not be raised and sustained by the subscriptions of gardeners only, outside support would be largely needed from all lovers of gardens and gardening. I am no advocate for arriving at hasty conclusions, even on such a worthy project, but the bases upon which it is intended to launch the scheme should be before the public as early as possible.

I strongly appeal to gardeners and others to make a special sacrifice and exert themselves to raise a good round sum. I do not believe that a gigantic institution can be started all at once; all that could be raised would be swallowed up in the building and management, while needful cases would thus be practically unprovided for. If worked on the same principle, or in connection with the Gardeners' Royal Benevolent Institution, a good start might be made, and the funds increased by special appeals from year to year, until ample had been raised to meet all deserving cases that come within its scope.

I must confess that I am no advocate for the founding of an orphanage to be dependent upon annual contributions, for many who might subscribe at the first would perhaps from a variety of causes be unable to do so afterwards. Such a state of things would most certainly cripple the institution and perplex the responsible committee, but much care and responsibility would be removed if they had to deal with a fixed income proceeding from invested capital. If the funds afterwards could be increased by yearly subscriptions all the better.

I would rather contribute one guinea as a donation at the commencement than pay 5s. or even 2s. 6d. annually, and I daresay many others would do the same; further donations being made from time to time as our finances would permit. It appears to me that the sum mentioned by Mr. Penny would be inadequate for building or buying a "home" and managing it on the grounds set forth. Generally speaking I am not in favour of these "homes," for to my mind the inmates are rendered too conspicuous, or singled out from the rest of the community by dressing the whole of them alike, very frequently in the most unbecoming manner. The time certainly comes when children realise their unfortunate position, and I think their early life should be made as happy and agreeable as possible. It is to be hoped that there are not many cases where father and mother are removed almost together; if so, the cases are fewer still where there are no friends who would care for them and train them. To all such I am in favour of outside support. A few shillings weekly would be of greater advantage to the widow than taking from her one of her children and rearing it after the formal manner practised in "orphanages." This scheme I will willingly support

and give a guinea to commence with, and undertake to collect for the same. Combined with this, "D., Deal's," scheme is an admirable one for all who may be left homeless and friendless. Outside support to the widows and friends of children who are left with them in straightened circumstances would at once meet many deserving cases which would have to be postponed to some very distant date if the building of a "home" is undertaken. Then those who are left homeless and friendless could be established in existing homes as "D., Deal's," pointed out.—WM. BARDNEY.

I HAVE read the various letters that have appeared in your columns on the above subject with considerable interest. I felt very doubtful at the commencement whether such an institution was needed, but as so many correspondents consider it to be necessary I will say no more on that point. But, if a fund is really necessary for this purpose, why spend the greater part of the money in erecting a costly building as many propose? If this was done it would then cost quite as much to maintain a child, and possibly more, than it would cost the mother at home. I consider the better plan would be to invest all the money that is subscribed at starting, add the interest of this to whatever is collected annually, and distribute this in certain portions to as many of the children as possible. This would prevent the mother—if living—from breaking up her home, reduce the expenses of management to a minimum, and if £20,000 or £30,000 can be obtained, which I very much doubt—instead of such a large sum of money being spent on a building and bringing no return, £600 to £900, or more, would be available as interest every year to add to the annual subscriptions. And if the annual subscriptions were reduced after a time, which is sometimes the case, this sum of money invested would do more to prevent the whole affair collapsing than would be done by a costly building.—W. H. DIVERS, *Ketton Hall*.

As Mr. Barron of Chiswick has been appointed Secretary *pro tem.* I ask my friends who have so kindly promised their support in this matter to be good enough to forward their subscriptions and communications to him direct.—J. UDALE, *Elford, Tamworth*.

MR. PENNY deserves great praise and credit in trying to promote such a desirable object as the above. At the same time I concur in the remarks made by Mr. Abbey and "D., Deal," in last Thursday's issue, respecting the Gardeners' Royal Benevolent Institution. It is certain it would require a large sum of money—many thousands of pounds—to build and partly endow an Orphanage of any pretensions, and, as Mr. Abbey says, there are many excellent orphan institutions already in existence. If Mr. Penny and Mr. Barron, or a central committee in London, opened a subscription list I think it would meet with a fair amount of support. If enough were subscribed for an Orphanage well and good; if not, it could be handed over to the Executive of the Gardeners' Royal Benevolent Institution as a Jubilee offering for the pension fund for aged and distressed gardeners or their widows. There are many calls upon the purse this Jubilee year for local and other purposes, that I for one certainly think that if gardeners give subscriptions to mark their appreciation of our good Queen's fifty years' reign, it could not be better invested than in the above Royal Benevolent Institution.—A. HARDING.

I HAVE read with no small interest the various letters in the Journal relating to the Gardeners' Orphanage. Like Mr. Thomson, I should be sorry to do anything that would in any way weaken the two present existing institutions, each of which I support. I cannot understand gardeners possessing such an institution to wish for another. I would beg to suggest that the capital raised be attached to the "Royal," as I have every confidence in the management of that institution, and I believe the members have generally.—S. BOYD, *Ballagan*.

A MEETING was held in the Royal Horticultural Society's Conservatory at South Kensington on Tuesday afternoon, to consider the Gardeners' Orphanage scheme, which has been discussed in the horticultural press during the past few weeks. Mr. G. Deal occupied the chair, and about thirty representative horticulturists were present, including Mr. Penny, the promoter of the scheme. After some consultation it was resolved that it should be entitled The Gardeners' Orphan Fund. The sense of the meeting was strongly against the erection of a building, the object being to obtain a fund the interest of which could be employed in obtaining admission for orphans to existing homes, or in affording assistance in other ways, to be determined at subsequent meetings. A provisional Committee was then appointed, comprising Dr. M. T. Masters, Shirley Hibberd, G. Deal, J. Douglas, J. Fraser, C. Penny, C. H. Sharman, Harry J. Veitch, J. Roberts, J. Woodbridge, A. F. Barron, R. Deau, J. Matthews, B. S. Williams, W. Richards, and J. Wright. Mr. W. Richards was elected Honorary Treasurer, and Messrs. A. F. Barron, J. Wright, and B. Wynne Hon. Secretaries. It was arranged that a meeting should be held on Friday next to consider the best mode of creating a fund and the method in which it shall be employed.

[We find that the firm of Messrs. Sutton & Sons, Reading, was omitted from the list of supporters of the project that was supplied to us last week. We are also requested to correct the name of Mr. "Whiteley" to Mr. Whibley. The list seems to have been hurriedly compiled and probably Mr. Penny's clerk had a difficulty in deciphering some of the names. We corrected several. We do not think our correspondents,

and intending contributors need be under any apprehension that the money collected will be expended on "bricks and mortar."]

THE LIVERPOOL SHOW.

MARCH 16TH.

The fifth spring Exhibition of this Society was equal to any of its predecessors. The severe weather experienced of late was against the prospects of a good show, but exhibitors were not undaunted, and the competition keen in most classes. The morning was piercingly cold, and a dense fog overhung the city, which fortunately cleared by the time of opening, and visitors attended in good numbers.

Hyacinths in Pots.—These formed an imposing exhibition alone, although in quality they were generally below the average of past years. In the class for eighteen Mr. James Kelly, gardener to R. Singlehurst, Esq., took the lead with a capital collection, which comprised good spikes; Mr. C. Wearing, gardener to J. Aikin, Esq., Princess Park, was a good second; Mr. A. Eaton was placed third with much lighter and thinner spikes. In the corresponding class for twelve plants Mr. A. R. Cox, gardener to W. Watts, Esq., Elm Hall, Wavertree, was well ahead with some of the finest spikes in the Exhibition; Mr. W. Kneale, gardener to Major Gaskell, Hillcliffe, Woolton, was a good second; and Mr. J. V. Thompson, gardener to W. P. Sinclair, Esq., a very even third. For six plants the last-named exhibitor was first, followed by Mr. J. Kelly and Mr. A. Eaton. For six pots with three bulbs in each pot there was good competition. Mr. P. Barber, gardener to M. Barnsley, Esq., Michael's Hamlet, was deservedly placed first; Mr. J. Bounds, gardener to A. L. Jones, Esq., Oaklands, Aigburth, was second; and Mr. J. Lounds, gardener to S. S. Parker, Esq., Aigburth, third. For twelve plants in glasses, prizes given by Mr. Henry Middlehurst, seedsman, Manchester Street, the prizewinners were Messrs. C. Wearing, Barker, and J. Bounds. Five or six collections were staged, the first-prize collection being well grown.

Narcissus.—These were not staged in large numbers, only two classes being provided in the schedule. For eight pots, Polyanthus varieties excluded, prizes given by Messrs. R. P. Ker & Sons, Basnett Street, only one collection was staged, which was rightly accorded the premier award. Mr. C. Copple, gardener to S. Rogerson, Esq., was the successful exhibitor. For six pots, not less than three varieties, the competition was good, and some fine examples were exhibited. Mr. J. Lounds took the lead with Mont Blanc, La Parfaite, and Queen of the Yellows. Messrs. P. Barber and J. Hurst, gardener to W. Bowring, Esq., Aigburth, were second and third respectively.

Tulips.—These were of average quality only. Mr. A. Collins, gardener to S. S. Smith, Esq., Princess Park, was successful for twelve pots, not less than six varieties; Mr. T. Stephenson, gardener to R. Cornelius, Esq., Aigburth, being second; and Mr. J. Leather, gardener to H. Nash, Esq., Princess Park, third. For six pots, the prizes being given by Mr. G. Downes, Edge Lane, there was a good competition. Mr. A. R. Cox took the lead, followed by Messrs. P. Barber and J. Bounds. With ten pots of double varieties J. B. Dixon, Esq., Preston, was the only exhibitor, to whom the first prize was accorded. With six pots Mr. P. Barber was first, followed by Mr. J. Lounds and Mr. W. Bustard, gardener to J. Lewis, Esq.

The Amaryllis staged for the three prizes offered were excellent. Mr. J. Hurst was deservedly first with two specimens, Mr. W. Bustard a good second, and Mr. Bostock, gardener to E. Harvey, Esq., third with Empress of India, Ackermani, and Andersoni.

Stove and Greenhouse Plants.—These were fairly numerous, and in equally as good condition as has been the case in previous spring exhibitions. For three flowering and three fine-foliage plants Mr. J. Jellico, gardener to G. Gossage, Esq., Camp Hill, Woolton, was well to the fore with a magnificent plant of *Pritchardia pacifica*, *Latania borbonica*, healthy and well grown; *Croton Queen Victoria*, 6 feet in diameter and well coloured; *Azalea Reine des Pays Bas*, well bloomed; a fine *Chorozema candatum* splendens; and a large plant of *Azalea Fieldingi*, white. Mr. A. Crosbie, gardener to B. Hall, Esq., was a close second, having good *Latania borbonica*, *Erica Wilmoreana*, very fine, 5 feet in diameter and profusely flowered; *Croton Mooreana*, also in superb condition; *Rhododendron Gibsoni*, 6 to 8 high and 4 feet in diameter at the base, full of bloom; a good *Cycas revoluta*; and *Azalea indica alba*. For one stove plant Mr. H. Cunningham took the lead, followed by Mr. F. Fleetwood, gardener to T. F. Harrison, Esq., Mr. A. Crosbie and Mr. J. McGrath being placed equal thirds, the former showing *Phajus grandifolius*, and the latter a large plant of *Eucharis grandiflora*. The two first competitors also staged well flowered examples of *Phajus*. For one greenhouse plant Mr. G. Rhodes, gardener to Mrs. Horsfall, was given the premier position for a large specimen of *Imantophyllum miniatum*; Mr. A. Crosbie was second with *Erica Wilmoreana*, 3 feet in diameter; and Mr. J. Lounds third with *Chorozema candatum* splendens, a large profusely bloomed plant. For one greenhouse *Rhododendron* Mr. G. Rhodes was first. Table plants were shown in excellent condition by Messrs. C. Evans, J. Jellico, T. Fleetwood, G. Park, Wigan, W. Crosbie, and J. Hurst. Ferns were shown in good condition by Messrs. G. Rhodes, A. R. Cox, and Mr. Bustard. For three Palms or Cycads Mr. A. Crosbie was first, also for one plant.

Azaleas.—These have been steadily improving every year, and the examples staged for the prizes offered were considerably better than the previous year. For six plants Mr. W. Wilson, gardener to H. Cunningham, Esq., Corsey Cop, Wavertree, was well to the front with large profusely flowered specimens of *Queen of Whites*, *Broughtonii*, *Alba Striata*, *Vesuvius*, *Criterion*, and *Phoenix*. Mr. Barber was placed second with rather uneven plants, and Mr. A. Crosbie third with much smaller plants of newer varieties remarkably well flowered. The same exhibitor took the lead with small profusely flowered examples. Messrs. J. Bounds and T. Gowan, gardener to J. Cunningham, Esq., were second and third in the order named. Mr. J. Lounds was first with three plants, followed by Mr. Jellico and Mr. W. Bustard. For one plant Mr. J. Lounds was to the fore with a large well-grown plant of *Reine des Pays Bas*, Mr. A. R. Cox second, and Mr. W. Bustard third. *Azalea mollis* was staged in admirable condition, and the various examples were covered with their large striking flowers. For four plants Mr. J. Lounds was to the front, followed closely

by Mr. Jellico and Mr. W. Bustard. For one plant the same competitors were successful, and in the same order as in the preceding class.

Roses were not numerous, but in better condition generally than has been the case on previous occasions. Mr. A. R. Cox was first with four plants—*Homère*, *La France*, *Roino Marie Henriette*, and *Souvenir d'Elise*, Mr. A. Crosbie the only other exhibitor, was placed second. For one plant Mr. A. R. Cox was again first with *Homère*.

Forced Plants.—These were staged in grand condition. For six plants Mr. J. Hurst was deservedly placed first with fine plants of *Clematis Lady Nevill*, *Deutzia gracilis*, *Azalea amona* profusely flowered, *Azalea mollis*, and a very fine Ghent variety. Mr. A. Crosbie was a good second, having *Clematis The Queen*, *D. clytra spectabilis*, and *Azalea Purity*. Mr. W. Bustard was third also with highly creditable examples.

Cinerarias were much better than usual, some very good well-grown examples being staged. Mr. J. Harrison, gardener to Mrs. Bateman, New Hayes, Allerton, was first for six plants; Mr. T. Ferguson, gardener to Mrs. Patterson, second; and Mr. W. H. Jolliffe, gardener to Mrs. H. Graham, Mossley Hill, third.

Callas were particularly good, especially those from Messrs. Jellico, G. Rhodes, and Mr. T. Stephenson. Mr. J. Agnew, gardener to Mrs. Watts, secured first honours for six pots of *Lily of the Valley*. Mr. W. Crosbie, gardener to G. C. Gale, Esq., was first for six *Cyclamens*, and the plants staged were all that could be desired. For six cut blooms of *Roses* Mr. Hannagan, gardener to R. C. Naylor, Esq., Horton, was first, and also for a dish of *Seakale*. For a dish of *Mushrooms* Mr. J. Lounds was successful, and also for a dish of "buttons." For French Beans Mr. R. Singlehurst gained the premier place, while Mr. J. Smeatham, gardener to F. D. Nuttall, Esq., was first for two bunches of *Grapes*. The class provided for groups only brought two competitors. The space to be occupied was sixty square feet. Mr. A. R. Cox gained the premier award for a very light, tolling arrangement. Mr. Jellico was a very good second, but his group was slightly more formal.

Orchids.—The schedule only provided two classes for these, but the competition was remarkably keen. Perhaps so many good Orchids have not before been seen in St. George's Hall. For four plants Mr. A. R. Cox was first with a grand plant of *Dendrobium nobile* with over 350 flowers, *Phalenopsis Schilleriana* with two spikes bearing forty flowers, *Cattleya intermedia* with eighteen fine flowers, and *Cattleya Triana*, *Popayan* variety, with six flowers. Mr. J. Edwards, gardener to H. Tate, Esq., The Beches, Allerton, was a close second, having a good *Odontoglossum*, being a very dark form of *O. triumphans*, a fine form of *Phalenopsis Schilleriana*, and a large *Oclogyne cristata* (Chatsworth variety). Mr. Moss, gardener to W. Holland, Esq., was third, having a very fine *Odontoglossum Halli*, *Lycaste Skinneri* with seven flowers, and *Odontoglossum Rossi majus* (these two collections were very close, and the one left out was well worthy of an award). For one plant Mr. J. Wilson, gardener to R. E. Reynolds, Esq., West Derby, was first with a large pan of *Oclogyne cristata*; Mr. D. Heary, gardener to — Schintz, Esq., Mossley Hill, was second with *Dendrobium densiflorum* with fifteen spikes; Mr. R. Ford, gardener to E. F. Wigan, Esq., third, with *Dendrobium primulinum*, very good, with six or seven well flowered pseudo-bulbs.

Hardy Herbaceous and Bulbous Plants.—In the open class for ten plants only two collections were staged; one by Mr. Bostock, who took premier honours, followed closely by Messrs. F. and A. Dickson & Sons, Chester. Some thought these should have had a higher position, for the *Narcissi*, of which the collection was composed, were certainly well grown. The other collection, however, had more varieties, being equally well grown. The four collections staged in the class provided for eight plants formed a feature of the Exhibition. Mr. J. Hurst was successful with capital examples of *Scilla siberica*, *Lily of the Valley*, *Spiraea japonica*, *Narcissus Bulbocodium*, a pot of *Polyanthus Narcissus*, *Dielytra spectabilis*, and a grand pan of *Triteleia uniflora*; Mr. Bostock was a good second, having imposing plants of *Helleborus Dr. Benary*, *Iris reticulata* (very fine), and *Chionodoxa Lucillia*; Mr. J. Bounds being third. The prizewinners for six pots of *Crocuses* were Messrs. J. Hurst, W. Bustard, and P. Barber.

Miscellaneous Exhibits.—These were numerous. Messrs. R. P. Ker and Sons staged a handsome group of *Azaleas*, for which they were awarded a certificate of merit. Similar awards were made to the Horticultural Company (John Cowan), for *Cinerarias* and other decorative plants; to Messrs. F. and A. Dickson & Sons, Chester, for a fine collection of border *Narcissi*, *Hepaticas*, and other plants; to Mr. H. Middlehurst, for *Hyacinths* and *Narcissus*; to Messrs. T. Davies & Co., Wavertree, for flowering plants, *Lily of the Valley* being especially fine; to Messrs. Fishlock Brothers, for a collection of wreaths, crosses, and bouquets. Mr. Winkworth, gardener to R. Brocklebank, Esq., contributed six pots of *Lachenalia Nelsoni* splendidly grown, one bulb having produced nine spikes. Mr. J. McGrath had an *Oncidium* named *Bueri* with twelve spikes, bearing 1198 small flowers, some of the spikes being 15 feet in length.

The Exhibition on the whole was most perfectly arranged, and reflected great credit upon the Committee and those in charge. The only drawback was the non-labelling of many of the plants. The Committee in future would do well to bring into force their rule on this matter, though some label their exhibits in a highly creditable manner—for example, Messrs. A. R. Cox and C. Wearing.

THE SNAKE'S HEAD IRIS (IRIS TUBEROSA).—For three successive seasons I have tried and failed to flower this Iris. Being a native of the warmer parts of the south of Europe it does not usually receive sufficient sunshine to ripen its tubers or rhizomes, but I have at last succeeded, mainly, I think, by keeping this fact in mind. It cannot compare in brilliancy with many others of the species, but is still very curious, and not less so in flowering in the middle of March. It has a mild scent, not so strong as *Iris reticulata*, with foliage similar, four-angled leaves, but a month later in blooming, both being potted in a cold frame, October 21st last. The shape of the flower is cruciform, with the external divisions of the richest black velvety maroon, fading to light greenish yellow in the throat, internal divisions of a curious brilliant silvery sheen. Though it may be planted in a warm sunny nook or a

rockery, a few should be potted up and kept on a sunny shelf.—W. J. MURPHY, *Connel*.



BARON SCHRODER'S ORCHIDS.

So carefully has the celebrated collection of Orchids at The Dell been formed, and so well are they grown by Mr. Ballantine and his assistants, that a visitor may always rely upon finding some plants of special merit in flower, but just now there is a feast of choice flowers of quite an exceptional character, even in "the Baron's" garden. Every house contains a number of beautiful plants, rare species, valuable hybrids, choice varieties, many unique, and all possessing merits of more than an ordinary character to obtain them a place in such a selection. In the cool houses there are some superb *Odontoglossums*; in the warmer houses, the *Cattleyas*, *Vandas*, and *Dendrobiums* provide abundance of flowers with countless others, the details of which would fill a volume; but there is one plant of so remarkable a character that it at once commands attention—namely, *Cypripedium Morganianum*—and to this a special paragraph must be devoted.

CYPRIPEDIUM MORGANIANUM.

The plant of this magnificent hybrid Lady's Slipper at The Dell is the finest in existence at the present time, and shows the distinctive characters of this Veitchian production to the best advantage. As indicated in fig. 42, prepared from a sketch of the plant, it has three scapes, one with three flowers and the others with two each. The petals are $4\frac{1}{2}$ inches long, three-quarters of an inch broad, boldly dotted with a purplish hue; the dorsal sepal is broad, white, evenly veined with dark crimson, the lower sepals being similar in colour, the lip $2\frac{1}{2}$ inches long, evenly and beautifully formed of a delicate pale purplish mauve tint. The leaves are strong, faintly marbled with dark green, and the whole appearance of the plant proves that it is one of the most free and robust hybrid *Cypripediums* yet obtained. United with such habit are nearly all the charms of the famous *C. Stonei platytenuum*, and it is not, therefore, surprising that *C. Morganianum* has taken a place amongst the most valued Orchids of the present day.

C. Morganianum was the result of a cross between *C. superbiens* (or *C. Veitchianum*) and *C. Stonei*, the seed having been sown in April, 1872, and the first flowers were produced about 1880. Baron Schröder's plant is a portion of the original specimen. Another fine example is in Mr. W. Lee's collection at Downside, and a third large healthy plant with eight growths is included in Messrs. Veitch & Sons' Chelsea Nursery. A fourth plant was that which was recently sold in the late Mrs. C. Morgan's collection in New York, when it realised £150, though originally presented to that lady when it was named in her honour. This has now, however, been divided into smaller plants to give the numerous wealthy Orchid amateurs an opportunity of including it in their collections. It is worthy of remark, as a proof that the cultural attention accorded this *Cypripedium* at The Dell is well adapted to its requirements, that during the four years it has been in Baron Schröder's possession it has flowered three times. It is grown with the other tropical *Cypripediums* in a warm house, where it has a fairly high temperature of 60° to 70° , increased by sun heat, plenty of moisture, and a pure atmosphere.

One of the parents of *C. Morganianum* is variously named *C. superbiens* and *C. Veitchianum*, which is thus explained. It appears that two plants were introduced, one by Rollissons from Java, which was subsequently sold to Consul Schiller, and furnished the material upon which Professor Reichenbach founded his *C. superbiens*. The other was introduced by Messrs. Veitch & Sons, and named *C. Veitchianum*, but no botanical description was published under that title, so that the former is now accepted. *C. Morganianum* is the only result of the cross between *C. superbiens* and *C. Stonei*, but *C. macropterum* was obtained from *C. Lowi* and *C. superbiens*, and *C. superciliare* from *C. barbatum* and *C. superbiens*. Crosses between *C. Stonei* and *C. barbatum* produced *C. euryandrum* and *C. hybridum*, the latter of continental origin, but all the others are Sedenian productions in Messrs. Veitch's collection.

DENDROBIUM WARDIANUM.

Passing for the present the many other choice Orchids at The Dell a few words must be said about the *Dendrobiums*, of which there is a good display in the stove. The plants are suspended from the roof, and as there are something like forty flowering growths, each 3 to 4 feet in length, and bearing a total of some hundreds of flowers, it can be imagined that the effect is unusually handsome. Especially notable is a plant of the supposed hybrid between *D. crassinode* and *D. Wardianum*, which on one fine pseudo-bulb, 3 feet long, has forty-seven large flowers, two of the spikes having four blooms each. The sepals and petals are white tipped with crimson, the lip with a gold centre, two maroon dots and a purple tip. It is an exceedingly beautiful form, so bright in colour and bold in form. Of the other *D. Wardianum*s one in a 7-inch basket has seven growths, 3 to 4 feet long, with a total of 124 flowers, extremely richly coloured, another fine variety having flowers

$4\frac{1}{2}$ inches in diameter. All these plants are wintered in the porch of the vinery where the temperature is frequently down to 40° , but being suspended near the glass the vigorous growths previously made are well matured, and in this seems to be the secret of the success.

A VALUABLE ODONTOGLOSSUM.

At Messrs. Protheroe & Morris's Sale Rooms, Cheapside, last Friday, an exceedingly distinct and beautiful variety of *Odontoglossum crispum* caused a little excitement amongst the numerous orchidists present. The plant was a small one with three pseudo-bulbs in a small 48-size pot, with one raceme of two flowers, but these were remarkably coloured. The sepals and petals were not so broad as in some of the *O. crispum* type, but well formed, and the general contour of the flower was pleasing. The colour—quite a new tint, that might almost be described as a bright red—was distributed in roundish spots and blotches over the sepals, petals, and lip, but forming a distinctly marked margin to the sepals and petals, giving a curious appearance suggestive of embroidery. As some of the leading Orchid amateurs were present it was anticipated that a smart competition would ensue, and this proved to be the case. Starting at a bid of 30 guineas it rose rapidly to 80 guineas, at which price it was sold to one of the largest purchasers.

ZYGOPETALUM VEITCHI.

In Messrs. J. Veitch & Sons' nursery at Chelsea an interesting hybrid Orchid flowered last week, presenting another example of bigeneric crossing. It was raised from seed obtained by crossing *Zygopetalum erinitum* with *Colax jugosus*, and sown in the autumn of 1882. Though partaking largely of the mother parent in habit and growth, the pseudo-bulbs are more ovoid and less tapering at the neck than is usual in that species. The flowers are also those of a *Zygopetalum*, but neater and brighter than *Z. erinitum*, with a shorter rounder lip, in which the lines radiate from the base in a similar way, but the colour is different, being more of a violet hue, and the hairs, so prominent in the *Zygopetalum*, are reduced to a very fine pubescence. The flowers are $2\frac{1}{2}$ inches in diameter, the sepals and petals half an inch in diameter and $1\frac{1}{4}$ inch long, the petals rather more acute than the sepals, both of a pale sulphury yellow with reddish mottling and round dots. The lip is just over 1 inch in diameter, rounded, white with fine violet-purple radiating hues. The whole appearance of the flower is singularly neat.—L. CASTLE.

CÆLOGYNE CRISTATA.

HAVING had the pleasure of reading in your Journal the interesting remarks respecting the above useful winter-flowering Orchid, allow me to state that we have at present three plants in bloom, two in 12-inch pots, one in a 14-inch. One has sixty-five spikes of blooms with 365 expanded flowers; one sixty-three spikes with 346 blooms; one sixty spikes with 350 blooms, bearing from five to ten blooms on a spike. The above have been grown in an intermediate temperature. I have no doubt *Cælogynes* may be grown in a cooler temperature, but I think it is doubtful if with such great success. The blooms are as large and fine as any that have come under my notice.—F. RUTLAND, *Goodwood*.

DENDROBIUM NOBILE IN SMALL POTS.

THAT the majority of epiphytal Orchids thrive better in proportionately small than in large pots is, I believe, the opinion of all, or nearly all, successful cultivators of these beautiful and interesting plants. Given suitable conditions of temperature, atmosphere, and light, the size of the receptacle in which they are placed is not a very material factor; though the chemical and mechanical conditions of the material employed about their roots are very important.

The mysteries of Orchid culture have nearly all evaporated under the combined influences of greater knowledge and common sense, as mists are dispelled by wind and sun. What was considered an example of extraordinary success a few years ago is now an everyday occurrence, and is attained by those claiming no special knowledge of the subject. But sometimes we meet with instances of more than common success, even for these days, being achieved by those possessing no special knowledge of the subject; and the other day I had the pleasure of seeing and noting an instance of this kind. In the drawing-room at Broom Leasoe, Whittington, near Lichfield (the residence of C. H. Inge, Esq.), I saw a very fine specimen of *Dendrobium nobile* in a pot only 6 inches in diameter. This plant was carrying seventy-two flowers nearly all in panicles of three—and in one instance of four—flowers, and fully up to the average in size and quality; and one pseudo-bulb measured 30 inches in length, the others ranging down to 2 feet or so, there being about twelve in all. I believe that this example of success is uncommon, especially where there is no Orchid house, and where the lady and gentleman manage their greenhouses themselves in the intervals of professional and domestic duties; and such success should stimulate others under similar circumstances to go and do likewise.—J. UDALÉ, *Elford, Tamworth*.

BORDER CARNATIONS.

Now the time for spring planting has come, some of the first plants that deserve attention are border Carnations. Why is it that we hear so many complain that these beautiful flowers prove unsatisfactory? The fault is due in the majority of cases to the planting being done too late, so that the plants do not have time to make proper growth, and this is often done under the mistaken idea that they are tender. I have for many years planted out large numbers of them, and my plan is to commence about the middle of February, and continue the work in

favourable weather to the middle of April. Plants kept in pots after that time get starved, thin, and drawn, hence the cry, "Oh, I can't grow Carnations. Last year I bought some and they ran up with just one flower stem, did not make any grass, and now my plants are all dead." To lay the foundation of success plant early.

The following is a selection that ought to find a place in every garden—viz., Alice Ayres, pearly white, striped carmine. Comte de Chambord, pale flesh, large and sweet. Prince of Orange, yellow, margined with carmine. General Stewart, deep crimson, fine form. Gloire de Nancy, pure white, clove scent. Sailor Gordon, white striped with coral. Guiding Star, bright scarlet. Mrs. Donaldson, rosy pink

1885, the destination of which was Cornwall, some 600 miles from here, and the agent who brought did so at a higher than the current rate on account of the sample being rather superior to the ordinary market samples. Then the farmers who thus sell go farther north for a portion of their seed. In all these cases—but it is not likely—the persons purchasing may be doing so without having any good ground for so ending their working capital. My own experience is that a change of seed is worth the outlay, provided care is taken to secure the tubers from a different kind of soil. On the other hand, Potatoes grown on soil of the same character are not worth troubling about. A few years ago I bought a very fine sample which had been grown on light soil, much lighter



Fig. 42.—*CYPRIPEDIUM MORGANIANUM*. (Baron Schöller's specimen.)

beautifully shaded. John Barnett, beautiful bright cerise. Pride of Penshurst, pure yellow self. W. P. Milner, pure white, very sweet. Walter T. Ware, rose lake, striped yellow.—F. G.

POTATOES.

THERE are few things we are so little safe to dogmatise about as in matters connected with plants and soils; therefore, I should not like to say that Mr. Iggulden is absolutely wrong when he, at page 208, expresses the opinion that a change of seed in Potatoes is of no effect; but I am certain that the experience which has led him to form that opinion is somewhat peculiar. I happen to be located in a Potato-growing district, and the farmers find it profitable to dispose of a certain quantity of seed Potatoes annually, these going to the southern counties in bulk, where it is to be supposed the growers find it profitable to purchase on commission and pay freightage. I sold Myatt's Ashleaf in

than our own, but there was no difference in the produce. From a strong soil, however, the result is markedly beneficial. Our own seed Potatoes are all properly prepared, yet seed off soil of the nature just indicated, through sprouted in "pits," and "cleaned" of the sprouts for market, yields a better crop than our home-prepared sets. Fresh soil on Potato ground influences the yield to about the same extent when compared with ground not so dressed. The same remark applies to ground which has been trenched as compared with that which has been only dug, while the application of certain chemical agents as manures exerts an influence alike in its effects as compared with ground not so treated. That is my experience in the matter.

I quite agree that there is no reason to suppose that varieties are degenerating. In a certain sense all vegetable products degenerate. Vines do, so do Apples, so do Orchids, so do Pelargoniums, so do hardy flowers; but the degeneracy is the result of a treatment which when altered changes the effect.

Then, as to varieties, there can be no doubt that some do better in certain soils than in others. That is a question of locality. But, further, some people consider the flavour of one sort good while others would not. That is a question of taste. And, above all, Potatoes require to be cooked with intelligence. The best Potatoes are easily spoilt in preparing for table, and that is a matter of cookery. Champions I have never yet tasted of high quality. They lack the flavour which makes good samples of Myatt's, Dons, Regents, and Victorias, cooked in their jackets, so superior to most other sorts. Magnum Bonum should not be eaten until May and June. It is then excellent. This requires to be cooked very slowly and allowed a longer time than most varieties.—B.



It has been suggested that the Royal Horticultural Society should hold a CHRYSANTHEMUM CONFERENCE this year, and at the meeting of the Floral Committee on Tuesday last the matter was brought under the attention of the members. The majority were in favour of the idea, and it was decided to refer it to the Council for further consideration. The middle of October was proposed as a suitable date, but perhaps that would be found rather early.

— TESTIMONIAL TO M. F. BERGMAN.—It is proposed by a number of horticulturists in France to celebrate M. Ferdinand Bergman's fiftieth anniversary of service at Ferrières, by presenting him with a testimonial, and a Committee has been formed to carry out the project. The President is M. Duchartre, the Secretary M. Paul Lebœuf, and the Treasurer M. Charveroux, 84, Rue de Grenelle, Paris, to whom all subscriptions should be sent. The list will be closed on May 1st, and at the Congress and Horticultural Exhibition to be held at Paris in May M. Bergman will be entertained at a banquet.

— MESSRS. J. VEITCH & SONS' AMARYLLISES AT CHELSEA will in a few days be in grand condition. There is quite a forest of strong spikes, and a large number of flowers are already expanded, including many handsome novelties. The centre partition has been removed from the house devoted to these plants, and the general effect is considerably improved in consequence. Hyacinths, Azaleas, Cyclamens, and forced flowering plants also occupy several houses, while the Orchids always comprise numberless attractions.

— MR. B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, has provided an extensive EXHIBITION OF SPRING FLOWERS this season, consisting chiefly of Hyacinths, Tulips, and other bulbs, with Amaryllises of numerous fine varieties, choice Imantophyllums, Orchids, and innumerable other plants. The nurseries are now very attractive and well worth a visit.

— AT the summer Exhibition of the CHISWICK HORTICULTURAL SOCIETY, to be held on Thursday, July 14th, this year in the Royal Horticultural Society's Gardens, Chiswick, prizes of the usual amount will be offered in most of the classes, but a special inducement is offered for groups of plants. In this class the first prize will consist of the "Jubilee Challenge Cup," value twenty-six guineas, presented by Mrs. S. A. Lee, which will become the absolute property of the exhibitor who is awarded the first prize in three years, not necessarily in succession. A money prize of £4, with second, third, and fourth prizes of £3, £2, and £1, will be presented in addition. The group must be arranged for effect in a space not exceeding 100 square feet, and is open to all exhibitors, non-subscribers paying an entrance fee of 10s. This Exhibition has become widely noted for the tasteful groups entered in competition, and such a substantial prize may be expected to add considerably to its interest.

— MR. W. IGGULDEN writes on the SEVERITY OF THE WEATHER IN SOMERSETSHIRE:—"Only the oldest inhabitants can remember having previously experienced such severe weather in March, and I hope it will never be my lot to chronicle another similar visitation. On Tuesday, March 15th, it was snowing nearly the whole of the day, from 15 to 18 inches of it falling in a few hours. Early on Wednesday morning the thermometer stood at 15°, and just before sunrise on the 17th it fell to within 3° of zero. On the morning of the 18th it was compara-

tively mild, the thermometer being at 18°, the next morning at 10° (this being 4° lower than it had fallen in January). On the 20th it stood at 15°, and this morning (March 21st) at 15°. It is rather early to estimate the amount of damage done, but Apricots, protected and unprotected, are much injured, and that too, where in a bud state. I shall not be surprised to find Peaches, Pears and Plums also injured."

— THE annual Exhibition of the EAST GLOUCESTERSHIRE ROSE SOCIETY will take place on Thursday, June 30th, at Moreton-in-the-Marsh.

— MR. H. CANNELL sends us eight varieties of CINERARIAS, four of them selfs, characterised by excellence of form, substance of florets, and rich clearness in colour. They are very good indeed.

— UNDER the title of "L'HORTICULTURE INTERNATIONALE," the Continental Horticultural Company of Ghent has been reconstructed for the introduction and culture of new plants and Orchids, with headquarters at Brussels, and a nursery in Ghent. The Society is under the direction of M. Van Lansberge, Baron G. de Blerehröder, Comte Adrien d'Oultremont, M. J. Linden, and M. Lucien Linden.

— THE March issue of "THE ESSEX NATURALIST," under which title the Journal, Transactions, and Proceedings of the Essex Field Club are now issued, edited by Mr. William Cole, Hon. Sec., contains the conclusion of an article on The Deer of Epping Forest, the Past and Future of the Essex Field Club, a Report of the Ordinary Meeting of the Club on February 26th, with various notes.

— MESSRS. WOOD & SON, Wood Green, London, N., send us a good sample of ORCHID PEAT, fibrous and free from coarse roots, which are comparatively useless in such material.

— TRADE PRIZES.—We are requested to state that Mr. William Colechester is offering for competition this year at the exhibitions of seventy-two horticultural societies in London and the provinces 100 guineas in cash prizes for flowers, fruit, and vegetables grown with pure Ichthemie Guano, which, we are informed, is fast taking the place of Peruvian.

— A CORRESPONDENT writes:—"The death of MR. JAMES MILFORD at Alphington on Saturday last carries off in the fulness of years a notable landscape gardener. His connection with the Exeter Nursery of Messrs. Lecombe, Pinee & Co. extends over nearly forty years, and many who remember the late Mr. Pinee will recall this hale and hearty old gardener. He was Mr. Pinee's right hand in all matters relating to landscape gardening, and two men never better understood each other. A number of the parks and gardens of the western counties, especially along the south coast, owe their beauty in a great measure to their taste and judgment."

— GARDENING APPOINTMENTS.—Mr. Geo. Cliffe, for the last eight years head gardener to Lord Belmore, Castle Coole, Fermanagh, Ireland, has been appointed head gardener to H. B. Mildmay, Esq., Shoreham Place, Kent. Mr. William Rewbury, head gardener to C. T. Cavendish, Esq., Crakemarsh Hall, Uttoxeter, has been appointed head gardener to F. J. Myers, Esq., Charlton Lodge, Banbury. Mr. F. W. Russell, late foreman to Mr. J. Willard, Holly Lodge Gardens, Highgate, N., has been engaged as head gardener to E. T. Doxet, Esq., Woodgreen Park, Cheshunt, Herts. Mr. W. Rutherford, for the last two and half years foreman at Carton, Maynooth, has been appointed gardener to Charles W. Barton, Esq., Glendalough House, Aranoe, Co. Wicklow. Mr. F. W. Seers, late head gardener to F. J. Myers, Esq., Charlton Lodge, Banbury, has been appointed head gardener to the Right Hon. the Earl of Aylesford, Offchurch, Bury, Leamington. Mr. F. Lockyer, late head gardener to Sir W. V. Guise, Bart., Elmore Court, Gloucester, has been appointed head gardener to Capel Hanbury, Esq., Pontypool Park, Monmouth.

— MR. A. WHIBLEY sends the following note on A GOOD MELON—"For the amateur and small grower who do not possess the advantages of artificial heat Sutton's Invincible Scarlet is one of the best Melons which can be grown. It is prolific, with a good constitution, a free setter, and deliciously flavoured, qualities possessed by very few of the so-called cool house Melons. Our plants were planted in the middle of last May in a pit and trained up to the glass. A small quantity of manure was used to give them a start, but the heat was all out of the manure in a fortnight, so they had comparatively cool treatment from

the first. The first fruits were ripe the second week in August, quite a fortnight earlier than Blenheim Orange and Hero of Bath, which were planted at the same time, and the flavour was better than either of these varieties. The fruit was of medium size, but this was probably owing to the number left on the plants."

— **BRIGHTON AND HOVE CHRYSANTHEMUM SOCIETY.**—This flourishing Society has issued their schedule of prizes for their fifth annual Exhibition, which is to take place in the Dome and Corn Exchange on Tuesday and Wednesday, 8th and 9th November. The prize list is an excellent one, and will no doubt be the means of "drawing" some of the best growers to Brighton on the occasion. By the balance-sheet we see that over £100 was paid in prizes at their last Show, and that they have added £16 to the balance. The Secretary is Mr. Longhurst (W. Miles' Conservatory), 18, Church Road, Hove.

— **LEEDS PAXTON SOCIETY.**—The following is the programme of essays, &c., to be read in the first quarter ending June, 1887. Meetings are held weekly at the Society's room, "Greyhound Hotel," Vicar Lane, every Saturday evening, commencing at 7.30 P.M. Exhibitions of cut flowers and other products are held every alternate Saturday. April 9th.—"Culture of the Cyclamen," Mr. Richard Walker, gardener to E. Calverley, Esq., Oulton Hall. April 23rd.—"The Planting and Formation of the Lawn, Shrubbery, and Terrace," Mr. Lewis Twigge, nurseryman, Wakefield. May 7th.—"The Vine," Mr. E. H. Bradley, gardener to Angus Holden, Esq., Woodlands, Bradford. May 21st.—"The Phalænopsis," Mr. J. Collier, gardener to J. Firth, Esq., Manningham Thorpe, Bradford. June 4th.—"Notes on Gardening—some of its Difficulties," Mr. James Newman, gardener to Mrs. F. W. Kitson, Burley Hill. June 18th.—"The Carnation and Picotee," Mr. Geo. Armitage, Churwell. Mr. George Hemming is the Hon. Sec.

— **THE WIMBLEDON AND DISTRICT ROYAL HORTICULTURAL SOCIETY** will hold their fifteenth annual Exhibition in the grounds of Woodhays on Wednesday, July 6th, this year.

— **MR. J. UDALE** writes that "*LACHENALIA TRICOLOR* is well grown at Broom Leasoe, where plants bearing twenty to twenty-two spikes of flowers are to be seen, and when grown so well as this they are truly objects of beauty. I attribute a considerable amount of Mrs. Inge's success in plant culture to the use of unfermented leaf mould; but of course the best soils, unless accompanied by loving care and attention, will not produce the most satisfactory results, consequently Mrs. Inge is to be congratulated on the possession and cultivation of such fine specimens of *Lachenalias*, &c. Mrs. Inge is a successful grower and propagator of *Azaleas*, and from now onwards the greenhouse will be very gay with them."

— **THE** reports of the Botanist to the New York Agricultural Experiment Station, Geneva, N.Y., Mr. J. C. Arthur, for 1885 and 1886, furnish an admirable illustration of the value of such State appointments. A large portion of both reports is occupied with an exhaustive history of **THE PEAR-BLIGHT** (*MICROCOCOCCUS AMYLOVORUS*), which is exceedingly destructive to Pear trees in the Northern United States; proofs that the mischief is caused by the specific bacterium; and suggestions for a remedy. In addition to this, much information is given with regard to the following diseases, among others:—The Strawberry mildew (*Sphaerotheca Castagnei*), the Plum-leaf fungus (*Septoria cerasina*), the Lettuce rust (*Septoria Lactuceæ*), and the Lettuce mildew (*Peronospora gangliiformis*). Woodcuts are given of these various fungoid parasites, and a very useful summary is appended of the literature of the Pear blight.—(*Nature*.)

— **W. A. COOK** writes:—"I can sympathise with Mr. Goodacre respecting the **PARSLEY**. I have found that these most elegant curled Parsleys are only of summer and autumn duration. I had several varieties last year, notably Veitch's Prize Curled, a very handsome Parsley; in fact I never saw any equal to it. I cut down a portion of that sown in March for the summer supply to get young growth, but to no purpose; all has failed. The July and August sowing has also succumbed, even one patch protected with frames. As regards the plain-leaved, that has stood the winter well; it was doomed last summer. I ordered it to be dug in, but the operator pleaded for this little patch (which had stood there several years) on account of it standing the winter so well; so for the future I shall grow a small patch for winter and spring supply."

— At a meeting of the Birmingham Gardeners' Society on Wednesday, March 16th, Mr. Horton, gardener to Richard Chamberlain, Esq., M.P., read an excellent practical PAPER ON THE CHINESE PRIMULA, giving very full details of culture from the sowing of the seed to the blooming time, as well as after treatment. Mr. Horton is a very successful cultivator, devoting a good sized span-roof house to their culture, and his plants of Emperor, The Queen, Princess Louise, Marquis of Lorne, and other varieties, showed plainly that he thoroughly understands the cultivation of this valuable winter-blooming plant. Speaking of the early history of the plant, Mr. Horton alluded to an illustration in the "Botanical Register" (plate 539), taken from a plant in bloom in March, 1821, in the garden of a lady residing at Bromley. Illustrations also appeared in other botanical works. To a Captain Rowe belongs the honour of its introduction from Canton in 1800, where it was found in a cultivated state only. Mr. Horton advocates sowing seeds in well-drained pots or pans, using a little sphagnum over good drainage, and in a mixture of three parts thoroughly decomposed cowdung, previously well baked in order to destroy any living organisms it may contain, and one part sifted cocoa-nut fibre, plunging the pot to the rim in a temperature of from 65° to 70°, covering the pots or pans with paper until the seed vegetates. The after treatment of the plants was thoroughly detailed as to repotting and general treatment, and the mixture used by Mr. Horton for the final potting consists of turfy loam one bushel, leaf mould half a bushel, marl (which has been exposed to the action of air and frost) one-third of a bushel, coarse gritty sand one-third of a bushel, with a 36-size potful of Clay's fertiliser, and the same quantity of powdered oyster-shells. To this a 48-potful of soot, the same quantity of lime, and a 9-inch potful of roughly broken charcoal issued, well mixing the whole.

— **THE** schedule is just issued of the SCOTTISH PRIMULA AND AURICULA SOCIETY's first Show, to be held in the Calton Convening Rooms, Waterloo Place, Edinburgh, on Wednesday, May 4th, 1887. Nineteen classes are provided, arranged similarly to those in the National Auricula Society's schedule, the prizes ranging from 20s. to 2s. Show and Alpine Auriculas, Polyanthuses, and Primula species are provided for, and certificates will be awarded for meritorious seedlings. A special prize, consisting of a silver medal, is offered by Messrs. Wm. Wood and Son, Wood Green, London, for the best specimen Auricula plant in the Show. The Hon. Sec. and Treasurer is Mr. W. Stratton, Annfield, Broughty Ferry, and the Assistant Secretary is Mr. James Grieve, Pilrig Nursery, Edinburgh. We are pleased to be able to record that the efforts of the promoters of this Society have met with so much success. We learn that there are now seventy members in all parts of Scotland, and including some of the leading amateur and professional horticulturists. Ample funds are guaranteed, and all that is now required is a satisfactory show in May next, which we have no doubt will be provided.

HARDY FUCHSIAS.

As it is well known, most Fuchsias will thrive out of doors in the summer, and they are often used in flower beds, for which they are admirably adapted. The drooping habit of most varieties, with their bright flowers, give them a peculiar grace. But the hardier class are much neglected, and not grown so much as they should be in many parts of the country. As a rule, it is only in southern England and near the coast that the Fuchsia is seen doing well; but if a little precaution were taken they may be successfully grown in the north. It is the rule with many gardeners to cut them down in the autumn, thus leaving them without any protection whatever during the severe weather. When cut down in the autumn a few coal ashes should be sprinkled over the plants, which will afford sufficient protection; but I find it is a good plan not to cut down until the end of April, for by leaving the thick bushes the frost does not injure the young growths if they start in the early spring, for on many occasions when cut down in the autumn the plant commences to grow early in the spring, and is then injured by late frosts.

We have *F. globosa* growing as a shrub. It is over 8 feet high, and with a stem 12 inches in circumference. It does not appear to be in the least damaged by the late severe weather, and during the whole summer it is a mass of richly coloured blooms.

F. corallina is a tall and slender variety, with large red flowers, suitable for training on walls or pillars.

F. coccinea is a well-known Fuchsia of great beauty with crimson flowers, which are produced in profusion during the summer months.

F. gracilis, a very distinct species, with long slender growths covered with red flowers borne on remarkably long stalks. In mild districts it grows to an enormous size.

F. Riceartoni is one of the hardiest species known. It will grow in any part of the country, and is worthy of culture, being a plant of compact growth, and covered with bright flowers.

F. discolor is the hardest of all the Fuchsias. It is of short sturdy growth, which are covered with small scarlet flowers during the summer months.—C. C.

NARCISSUS PSEUDO-NARCISSUS MINIMUS.

IN the note of this lovely little winter Daffodil at page 195 your correspondent, "R. Merton," inquires "whether any of the Daffodil-growing readers of the Journal have ever tried raising the plant from seed, or by growing it in richer soil to test how much the flowers and general stature can be enlarged." Before offering any reply to this query, it must certainly be said that it would be impossible to have it in too great a quantity, for it is such a welcome harbinger of spring that it is pleasing everywhere. It is, however, much too scarce at present to make much show in masses, on account of its miniature size and growth. If your correspondent can procure seed I would advise him to do so by all means and raise all he can, it will be most interesting to wait the result. I have never had the opportunity myself of testing what may be done by raising it from seed.

With regard to the best soil for these frame Narcissi, I have not found an over-rich soil to be beneficial to them; for the Corbularias generally and N. triandrus I find a mixture of fibrous peat, loam, and sand in about equal parts, with well-decomposed manure in about one-third that of the other soils in bulk, suit them well; for the charming N. minimus I use a rather sandy loam with manure added, and for N. nanus and the remainder of the smaller forms of the pseudo section I give no special treatment whatever. The ground in which they are planted is well manured and the soil a light somewhat fibrous loam, which suits them admirably. I may add that N. nanus is very pretty when used either as an edging or in well-established clumps on the rockery. It is better suited than N. minimus, which if left unprotected is always bespattered after heavy rains; in fact, all these smaller forms are injured thus, and should receive some protection from pelting rains if not planted on grassy slopes or the like.—J. H. E.

ROYAL HORTICULTURAL SOCIETY.

MARCH 22ND.

THE display of Hyacinths and spring flowers was not so extensive nor good as is usual at the second March meeting, owing to doubt to the severe weather experienced for some time previous.

FRUIT COMMITTEE.—Present: Arthur W. Sutton, Esq., in the chair. and Messrs. S. Ford, James Smith, W. Denning, J. Roberts, G. T. Miles, W. Warren, Wm. Paul, R. D. Blackmore, Philip Crowley, G. Bunyard, J. Woodbridge, T. B. Haywood, J. Fitt, and Harrison Weir. Major Shutt worth, Old Warden Park, Biggleswade (gardener, Mr. Allis) had sixteen dishes of Apples, the fruits fine and remarkably well kept, the best varieties being Striped Beefing, Dumelow's Seedling, Wyken Pippin, Adams' Pearmain, Blenheim Pippin, New Hawthornden, and three lunches of Alicante Grapes. For the former a cultural commendation and a vote of thanks were accorded. L. A. Wallace, Esq., Leonard's Lee, Horsham (gardener, Mr. S. Ford) had fourteen dishes of Apples, which were highly commended, and a cultural commendation was awarded. The fruits were extremely fine, Golden Reinette, Mère de Ménago, Gold n Noble, Norfolk Beefing, and Adam's Pearmain especially so. Mr. F. Barnett, Decker Hill, Suffolk, sent samples of a seedling Apple raised there twenty-six years ago, supposed to be from Golden Reinette and Northern Greening; the Committee wish to see more fruits on another occasion. Mr. W. Roupell, Roupell Park, was awarded a vote of thanks for eight varieties of Apples grown on small bushes in his garden, with Cornish Gill flower from an unpruned standard. Northern Greening, Bedfordshire Foundling, Beauty of Kent, Lane's Prince Albert, Annie Elizabeth, and Five Crown Pippin were well represented.

FLORAL COMMITTEE.—President—G. F. Wilson, Esq., in the chair; and Messrs. W. Wilks, Shirley Hibberd, G. Maw, H. Bennett, W. Goldring, James Walker, H. Herbst, G. Paul, H. Bradshaw, J. Fraser, T. Baines, R. Dean, B. Wynne, C. Noble, J. Dornay, C. Palmer, H. Ballantine, J. O'Brien, A. F. Lundy, E. Hill, H. Turner, and W. Holmes.

Only two groups of Hyacinths in pots were contributed, that from Messrs. J. Veitch & Sons, for which a silver-gilt Banksian medal was awarded, comprising 130 plants, representing a selection of the best varieties, and comprising some handsome massive spikes. The varieties will be noted fully in another issue; for the present we can only refer to the following novelties. Five were shown, La Belle being much superior to the others, and well deserved the certificate awarded. It is single, and has large bells in a bold but rather loose spike, of a delicate pale pink hue, very beautiful; Charmer, single, dark blue, good; James Watts, single, purplish mauve; Admiration, double, a delicate salmon-tinted flower; and Criterion, double, mauve, neat bells. A silver Banksian medal was awarded to Messrs. W. Cutbush & Son, Highgate, Barnet, for a group containing about the same number of plants and of similar merit, all the most approved varieties being included. Daffodils were shown in strong numbers, and the Daffodil Committee was busy during the day in comparing the numerous varieties shown and correcting their nomenclature. Messrs. Barr & Son, Covent Garden, had a most beautiful collection, the flowers being shown in bunches, with the foliage tastefully arranged and representing some charming varieties. Anemones, Chionodoxas, and other flowers imparted some variety to the display, and a silver-gilt medal was awarded. Mr. T. S. Ware, Tottenham, had a fine group of Daffodils and other flowers, their example of Anemone coronaria attracting much attention. A silver Banksian medal was awarded for this collection, which included numbers of the choice Narcissi in all the sections. Messrs. Collins, Bros., & Gabriel, Waterloo Bridge Road, were adjudged a silver Banksian medal for a similar collection, arranged in Hyacinth glasses, but without foliage. A silver Banksian medal was also accorded to the St. George's Nursery Company, Hanwell, for a group of well-grown Cyclamens, and a bronze Banksian medal to Mr. Drost, Kew Road Nursery for groups of handsome Spiræa japonica and Lilies of the Valley. A silver Banksian medal was deservedly awarded to Messrs. Paul & Son, Chiswick, for a group of Roses in pots, chiefly dwarf

plants of Teas and H.P.'s, but including a few standards of the graceful Polyantha Roses, Parqueritte and Mignouette, the former white, the latter pink, both very free. Of the Tea Roses beautiful specimens of Jean Dacher, President, Sunset, Rubous, and Madame d. St. Joseph were shown; while of H.P.'s Marquise de Castellane, Dr. Andry, and Victor Verdier were similarly well grown and flowered.

F. A. Philbrick, Esq., Oldfield, Bickley (gardener, Mr. Heims), sent a strong plant of Angraecum citratum with two spikes, the floral portion of which exceeded 18 inches in length, the best we have yet seen. A cultural commendation was awarded for the plant, which Mr. Philbrick thinks may be a natural hybrid, as it has always shown this superior character since it has been at Oldfield. A plant of Cypripedium Barteti, a hybrid between C. barbatum and C. Chantini, was also shown and deserved a certificate. The flower is neat in form, with a shining surface and a fine purplish tint running through it, especially in the dorsal sepal. T. Harcourt Powell, Esq., Drinkwater Park, Bury St. Edmunds (gardener, Mr. G. Palmer), had flowers of Odontoglossum Pescatorei, tinged with purple, and O. excellens, yellow, with rich brown spots. De B. Crawshaw, Esq., Rossfield, Sevenoaks (gardener, Mr. Cooke), had specimens of Odontoglossum hibernicum, O. glorio-n superbum, and O. Rossi majus, good varieties; a very fine form of O. triumphans being certificated.

Messrs. J. Veitch & Sons, Chelsea, exhibited several handsome Amaryllides. Those named Hilarius, rich scarlet; The Bride, white, with rose streaks; Paulina, of good shape, veined scarlet; Hon. and Rev. J. T. Boscawen, light scarlet, with white central bars; and Her Majesty, white, with scarlet streaks, being noteworthy; but their plants of the charming Boronia heterophylla (certificated) were the special feature of the exhibit and were greatly admired. Mr. Todman, Rose Park Nursery, Upper Tooting, was adjudged a vote of thanks for plants of his hybrid Chinese Azaleas. Fielly, bright red; Snowflake, pure white; Formosa, rich red; Ethel Hibberd, a fresh rose tint; Robert Crook, red; and Maud Todman, double rose, very pretty. Mr. Drost, Kew Road, had a vote of thanks for Tulips and Maidenhair Ferns, and a cultural commendation for some fine trusses of Lilac. G. Maw, Esq., Kenley, Surrey, sent a dwarfed Japanese Pinus from Yokohama, supposed to be thirty years old, it was about 18 inches high, with a much-twisted and deformed stem. (Vote of thanks.) Mr. B. Gilbert, Bourne, Lincolnshire, sent a very bright yellow Primrose; and G. F. Wilson, Esq., Weybridge, showed a plant of Cologne cristata with long pseudo-bulbs and six flowers, and flowers of hybrid Lenten Roses (Hellebores), for which a vote of thanks was accorded. Mr. C. Turner, Slough, had a basket of the handsome Violet Wellsiana, with large single dark-coloured fragrant flowers. (Vote of thanks), and Messrs. James Green & Nephew, 107, Queen Victoria Street, showed a number of graceful glasses for cut flowers.

CERTIFICATED PLANTS.

Odontoglossum triumphans, Rosefield Variety (De B. Crawshaw).—A handsome plant with two racemes of nine and thirteen flowers each, the sepals and petals barred with dark rich shining brown and tipped with yellow, the column and base of the lip white, the upper portion of the lip dark brown. The colour was more remarkable than the shape of the flower, as the sepals and petals were not so broad as in some varieties.

Rhododendron balsameiflorum carneum (Veitch).—A double variety of the greenhouse hybrid section, the flowers of good form, salmon tinged with rose.

Zygopetalum Veitchi (Veitch).—An interesting hybrid between *Z. crinitum* and *Colax jugosus* described on page 232, in the Orchid column.

Boronia heterophylla (Veitch).—An exceedingly handsome Boronia, with rich syriac in drooping bud-like flowers, of the B. elatior habit, the slender growth being clothed with the flowers springing in clusters from the axils of the leaves. The leaves vary in form from trifoliate to pinnate, with linear segments. It is a free grower, very floriferous, and evidently a thoroughly useful plant.

Hyacinth La Belle (Veitch).—A single variety, with a bold tall spike, the flowers large, and of a delicate pale pink colour. One of the most distinct new Hyacinths of recent years.

SCIENTIFIC COMMITTEE.

Dr. M. T. Masters in the chair.—Present: Hon. and Rev. Mr. Boscawen, Messrs. Bennett, Michael, Wilson, Maw, Ridley, Murray, Dr. Lowe, and Rev. G. Henslow.

Orchid Diseased.—Mr. Smith reported that the leaves submitted to him contained no fungus nor insect. Mr. O'Brien undertook to re-examine it.

Narcissi.—Mr. Boscawen brought wild specimens of double and single Telemonium from Roseland on south coast of Cornwall; and also both double and single wild forms of N. pseudo-Narcissus from Lamorran.

N. rhipicola and *N. juncifolius*.—Mr. Maw remarked upon these species that in the former the ovary was sessile and the leaf keeled, while in the latter the ovary was not sessile and the leaf half-cylindrical; and while the former is found in the Sierras, the latter only occurs in the Central Pyrenees, and again in the South of Spain. He also exhibited the only white Daffodil known wild, or *N. moschatas cernuus*, from the Spanish Pyrenees.

N. viridiflorus and *N. serotinus*.—Mr. Maw observed that these bore no leaves in autumn when flowering, but the small terminal buds had short leaves before arriving at the flowering condition.

Xiphion tingitanum.—Mr. Maw exhibited dried specimens of this species, which is very abundant about Tangier, though often bears no flowers.

"Kief."—Mr. Maw brought specimens of the plant used for smoking in Morocco, which was supposed to be a variety of Hemp. It was referred to Mr. Ridley for examination and report.

Chamerops humilis.—Mr. Maw showed various economic uses to which the fibre of the leaves of this Palm are put in North Africa, as mats, brushes, cigar-cases, &c.

Dwarf Pine.—Mr. Maw exhibited a specimen of a dwarf Pine tree about 18 inches high growing in a pot, brought from Yokohama. It was apparently *Pinus parviflora*. It was thirty years old, with a curiously twisted stem and remarkable roots. Such dwarf trees are obtained by repeated ligatures, thereby checking the development, as well as by restricting the root-growth. A vote of thanks was unanimously awarded to Mr. Maw for his interesting communication.

Hybrid Narcissus.—A communication was received from Mr. John J. Smith, and specimen of a supposed hybrid between *N. Bulbocodium* and *N. obvallaris*, or the Tenby Daffodil. He raised about twenty bulbs. The flowers were all of the character of *Bulbocodium*, but larger in flower, stem, foliage, and bulb. The present appearance of the plants to ordinary observers is that of gigantic *Bulbocodiums*, but there are many interesting changes to be noticed, such as some leaves assuming an upright growth, a partial flattening of others, &c. Some doubt was expressed by Mr. Maw as to its being a true hybrid, and further communication was requested from the author.

Roots of Fern with Bulbs.—Dr. M. T. Masters exhibited a specimen of *Diplazium malabaricum* with bulbs on the roots; a rare occurrence.

A communication was received from Ed. B. Welder, Esq., thanking the Committee for their expression of condolence on the death of his father.

The Frost Report.—This report having been presented to the Committee, a vote of thanks was given to the Rev. G. Henslow for the preparation of the same.

CHRYSANTHEMUMS AND THEIR CULTURE—A CRITIQUE.

SOME explanatory remarks were condensed from my paper which would have more clearly shown the position I took up as Mr. Molyneux's critic, but still if he had been at ordinary trouble to calmly read and interpreted fairly what I advanced he would have at once recognised that the gist of the argument lay in the fact that climatic differences were the chief factors in the results of our practice, and a want of appreciation of this fact was the cause of our difference of opinion. Mr. Molyneux seems to have fumed a little at the audacity of anyone questioning his teachings as expressed in his book, and his reply smacks a little of injured innocence, whereas no injury was intended, least of all that which would detract from the merits of the book as the best publication on the subject. On receiving a request from the Secretary of the Leeds Paxton Society to read a paper on the Chrysanthemum about the time Mr. Molyneux's book was published, I came to the conclusion that to raise a discussion on the points at issue, so far as the area which embraces the Yorkshire Union of Horticulturists was concerned, would be more advantageous to the members than would any cultural paper of my own on so hackneyed a subject. Until after the meeting I had no idea that my critique would be published. As I had stated my opinions to the eighty gardeners who were present at the meeting, I had no objections to face Mr. Molyneux, hoping that his successful experience would help us to solve some of the problems of bud formation and their complications, which to us, by the nature of Mr. Molyneux's reply, are of more consequence than he can appreciate. As cordially as Mr. Molyneux I reciprocate his sentiments that honest criticism and fair argument lead to improvement, but if all the improvement possible is to be derived from the discussion of a complex question like the one in hand, arguments, if conclusive, must be met fairly and acknowledged to be so. I fail to see that mild sneers at Yorkshire gardeners and at scientific terms will help us to clear up the "unaccountables," and Mr. Molyneux places a very low estimate on the capacity of gardeners when he assumes that they are incapable of understanding the simple terms in which I chose to convey my meaning in the fewest words.

Mr. Molyneux all through his reply has perversely altered the sense of my arguments. To save repetition let your readers place them parallel to each other. In his reference to the third of the sections compiled by me I am made to set up certain varieties as "criteria," and pin my faith to them as models of the highest class flowers, where I simply included them in the argument in a class of a representative collection for a definite and distinctly different purpose, the varieties alluded to having no bearing in the sense put by Mr. Molyneux on the argument. I know very well that the James Salter string upon which Mr. Molyneux harps will not do to play on in good company, but how long since did Mr. Molyneux discover that the other varieties named were unfit for good society? Surely if Henri Jacotot is good enough to merit a place in a select list requiring special treatment, and Mr. Bunn, which surely is one of the Beverley type, and was good enough material to be placed in Mr. Molyneux's very exclusive list of twenty-four incurved varieties to be grown for a stand of that number for exhibition, if I erred in quoting these varieties I at least erred in good company.

Again note Mr. Molyneux's reply to what I stated in reference to his little Peter the Great. After deliberately altering the sense of my argument he labours hard and travels a long way backwards, only to prove that my "theories" which I advanced in respect to this plant were correct, but I never, as he puts it, absurdly compared such plants in their relation to height and quality of bloom with those grown for another purpose. At the beginning of the paragraph in which I referred to this plant I distinctly brought it forward as an example that quality of bloom, be it good or bad, is in some measure due to the complication of bud formation in the earlier stages of the plant from which the cutting was taken. These complications were never mentioned in Mr. Molyneux's book, yet he coolly informs us that my argument is in his favour, and then inconsistently goes on to tell us that it is unnecessary for beginners to understand those complications. Why? This is tantamount to saying that the Journal and the other gardening periodicals may at once subside, that we may at once dissolve our gardeners' mutual improvement societies, and that the benighted Yorkshire gardeners must remain content to shine by the dim light of their own experience and just that amount of information added which Mr. Molyneux chooses to eke out to us.

Mr. Molyneux is equally unfortunate in his reply on the question of

topping plants indiscriminately at 8 inches high. I never inferred that he was in favour of that practice, nor yet again inferred that he said that the dwarf plants, which produced the unaccountably fine flowers, are dwarf owing to their being topped or broken. If he had followed the sequence of my paper, taking the second part of it to better illustrate my meaning, the fact could not have escaped him that I was reasoning with a definite object in view, and used certain illustrations to show or prove what I meant, and the paper taken in its entirety can in no way be treated fairly as he has treated it by picking out here and there, from which in each case to found an orthodox homily on, simply to show how ignorantly heterodox his critic must be.

In the paragraph referring to the question of dwarf plants producing good flowers, and tall plants producing poor flowers, Mr. Molyneux fully admits what I stated to be correct, and then attempts to stultify both himself and me by saying that his experience is the reverse of mine in this matter. The only other construction which can be placed upon his statement is the one that he is assuming, that I had stated that dwarf plants generally produce better flowers than tall plants. In no sense can I be charged with making such a statement.

In alluding to the style of my treatment of the crown bud formation, how deftly Mr. Molyneux transfers the responsibility of teaching beginners from his own shoulders to mine. He says I am very full but not sufficiently clear, because I chose two or three technical terms, which he grandiloquently magnifies into "scientific terms," to indicate that certain consequences would accrue if the plants were not in a condition which every gardener is supposed to be able to decide upon by ordinary observation, whether it be a Chrysanthemum or any other plant. Really, Mr. Molyneux, this is simply begging the question; and to again answer his query, What are the well known causes? would be running the risk of being put out of court by the Editor for attempting to monopolise space, by reiteration of previous arguments which have been already fully brought forward.

In answering a query which I put in reference to modification of height as affecting influence on the flower, Mr. Molyneux has enumerated a variety of causes to account for it; but as affecting growers in the north, the most important, and those underlying the whole controversy, as advanced in my "critique," he never admits into his calculations; on the contrary, we are told that it is not necessary for us to understand them. These causes are the earlier complicating ones, which affect the setting at the proper time of that bud which is retained to develop into the flower. If Mr. Molyneux can afford, owing to his climatic conditions, to ignore these causes, we who are situated where the autumn begins considerably sooner, and very often accompanied by sunless skies—denying to us the necessary ripening influences to act on plants already behind in this respect, owing to our smoky atmosphere—cannot afford to ignore those complications, because if the buds are not secured within a very narrow margin, on account of the above causes, they never develop into good flowers, no matter whether topped or grown otherwise. On the other hand, when secured at the proper time, they are at least good enough to do us credit, if not exactly good enough to bring us into the front rank of exhibitors. Although the exhibition table may be the primary object with some growers, there are quite as many who grow representative collections for the pleasure of having them in as high a state of perfection as is possible to attain under the conditions under which they are placed; and my contention all the way through my paper was that having healthy vigorous plants for our foundation, if they were topped at the time which experience had proven to us as the most suitable for them, to make one instalment of growth free from bud complications, which this topping would free us from, as in the case of Eve and Mabel Ward, this growth made and ripened will produce us better flowers than that wood which I described in my "paper," which is the result of chance complications, and which would throw us too far into the autumn for us to secure the best results. In reference to Mabel Ward and Eve, it is no proof that the other varieties are not amenable to the topping system, because the previous sorts have proved more obstinate in producing good flowers when allowed to break naturally, but the reverse if we are to reason from analogy; and practical experience, much as it may help us in clearing up this matter, is no proof without all collateral causes affecting the result are taken in consideration, many of which probably have had more influence in the result than the simple process of topping or leaving untopped.

Gladly I withdraw the statement that Mr. Molyneux "made guesses as to his dates for the guidance of growers in other districts," but second-hand information of that sort requires to be carefully considered, because scarcely two practitioners can work in exact parallel lines in their practice. In conclusion, I may add that I should have been glad to have kept my own personality in the background, but Mr. Molyneux infers that I am only a small grower, and I suppose he thinks that what I may advance on the subject is more theoretical than practical; but although personally unknown to "Mr. Molyneux and to fame," I can assure him that I have grown and made a study of the Chrysanthemum for more than eleven years.—T. GARNETT.

VIOLET LADY ESLINGTON.

ENCLOSED I send you a few blooms of a new Violet, Lady Eslington. It is not the value of the variety, but the way it has originated that has induced me to send them. It is a sport from Marie Louise. You will see the colour closely approaches the old beautiful Neapolitan. The form is rather broader than that variety. The plant is dwarfer in habit and the leaves considerably longer.

I do not know the origin of Marie Louise, but this sport would almost lead one to suppose that it may have been a sport from the Neapolitan, as the one sent has so nearly gone back to the original.—JOSEPH OLIVER.

[The Violet blooms are very fine and the foliage good, indicating the superior culture practised. It is a remarkably fine form of the true Marie Louise, which is an improved variety of the type usually grown in gardens under that name, and which is synonymous with New York, Odorata pendula, Venice, Marguerite de Savoie, Duke of Edinburgh, Madame Millet, &c. All are sports from the old Neapolitan, and being liable to vary somewhat in different soils and localities names without reason have been given to the variations. The varieties named are a dirty mauve, with a white eye, and the base of the petals splashed with red. Those are liable under superior cultivation to produce the true Marie Louise, which is deep lavender, tinged mauve, white eye, and with faint white lines up the petals. Such is your plant—not a reversion, but an improved form of the old Neapolitan Violet. It is quite distinct from De Parme—the best form of the Neapolitan extant, and most constant.]

ROYAL BOTANIC SOCIETY.

MARCH 23RD.

THIS Society's first spring Show of the year was a very satisfactory one, the number of the exhibits being greater than usual, especially those not in competition. The day was also a favourable one, being clear and sunny, inducing many visitors to attend. Quite an extensive display of Hyacinths, Tulips, Narcissi, Cyclamens, &c., was provided, Mr. B. S. Williams being a prominent exhibitor, Messrs. Cutbush & Son and J. Veitch & Sons also having large groups. We can only give a brief record of the principal exhibits.

Hyacinths were chiefly contributed by Messrs. Veitch & Sons, Chelsea (large bronze medal), H. R. Wright, Lee (large bronze medal), H. Williams and Son, Finchley (small silver medal), W. Cutbush & Son, Highgate (small silver medal), and B. S. Williams, Upper Holloway (large silver medal). In the amateurs' class for twelve Hyacinths Mr. Douglas won premier honours with good plants, Mr. W. Eason following, and these exhibitors were placed in the same order for twelve pots of Tulips. In the nurserymen's classes Mr. H. R. Wright, Lee, was first for Hyacinths and second with Tulips. Messrs. H. Williams & Son obtaining the second prize for Hyacinths and the first for Tulips, both showing well grown plants. The chief prizes for Cyclamens were gained by Messrs. F. J. Hill, J. Odell, and J. Wiggins. Messrs. H. Williams & Son and J. Douglas having the best Primulas, and the last named was also first with Crocuses. The St. George's Nursery Company, Hanwell, had a group of Cyclamens (bronze medal), as also did Mr. J. Wiggins (certificate).

Azaleas were not very largely shown. Mr. H. James, Norwood, had some rather roughly trained specimens, and Messrs. Todman & Sons, Upper Tooting, had six neat specimens of their hybrids, Mrs. A. Heaver, double white, being very noteworthy; but the best plants were those from Mr. Eason, gardener to B. Noakes, Esq., Highgate. In the Amaryllis competition Mr. J. Douglas and Paul & Son were respectively first and second, the former's flowers being of capital size and rich colours. Messrs. Paul & Son, Cheshunt, exhibited Roses well, being first in the class, and also having a group (large bronze medal). They also had a pretty collection of Alpine plants. Mr. J. Douglas's giant specimen Dentzias were as usual first in the class for these plants, being much superior to the other entries.

Daffodils and miscellaneous flowers were contributed by Messrs. Barr and Son, Covent Garden (large bronze medal), Collins Brothers & Gabriel (bronze medal), and T. S. Ware, Tottenham (certificate). Messrs. H. Williams & Son, Finchley, had the best Lilies of the Valley, very fine specimens, large bells and long spikes. Mr. J. Douglas was the most successful exhibitor of hardy plants and Primulas, showing pretty collections. Messrs. Paul & Son, Cheshunt, and Mr. F. Clement, gardener to L. H. Hicks, Esq., Muswell Hill, also showing well. Mr. W. Rumsey, Waltham Cross, had a pretty group of Roses in pots (large bronze medal). Mr. Drost, Richmond, sent a group of Spiræas, Lilies of the Valley, Tulips, and Isolepis (certificate). Mr. F. J. Hill, gardener to H. Little, Esq., The Barons, Twickenham, sent a beautiful collection of Lycopodium Skinneri varieties and other Orchids.

A large group of Camellias in pots, Clematis indivisa lobata, and eight boxes of Camellia blooms came from Messrs. Wm. Paul & Son, forming an imposing display. (Silver medal.) The Cinerarias from Mr. J. James, Farnham Royal, Slough, were as usual extremely handsome and varied in colour. (Large bronze medal.) Mr. W. May, gardener to F. C. Jacob, Esq., Stamford Hill, exhibited a beautiful group of Odontoglossums and other Orchids arranged with Ferns. (Bronze medal.) Messrs. J. Cheal and Son, Crawley, showed an excellent collection of Apples.



KITCHEN GARDEN.

THE WEATHER.—Recently the weather took a decided change for the worse. We had 15° of frost on the 13th, and 8 inches of snow on the 15th, and our open-air crops have had to pass through it all; but they were placed in when the soil was in first-rate condition, and we do not think the severe weather will injure them very much; but checked they undoubtedly

will be, and the majority of the crops will be a fortnight or more later than they seemed likely to be two or three weeks ago. The whole of the crops we have recommended to be sown and planted have been placed out by us, and we do not intend trying to remedy matters at present, as a little good weather will soon do this, but more attention will be given to crops under protection, as these will be our mainstay for some time to come.

KIDNEY BEANS.—Many are apt to discontinue sowing these under glass about this time, as they think it will not be long before the open-air seed can be sown, but Kidney Beans can rarely be gathered in the open until the middle of June, and the recently sown seed will not give a supply until then. More should be sown to fruit in May, but they can be placed in more roughly than those sown in the short days. Any old cutting boxes may be filled with rich soil and the seed dibbled into it. They will germinate in a temperature of 60°, and as the bedding plants are turned out of the frames in April the Kidney Bean boxes may take their place, as the plants will bear freely in cold frames in May. Where early Potatoes are being lifted from frames level the soil afterwards and fill with Kidney Bean seed, as sowings of this kind will bear before the open-air plants, heavy crops and a long succession of pods being obtained from such quarters. Repot those requiring this attention, give those in bearing weak liquid manure twice weekly. Throw away all plants that have ceased bearing. Ne Plus Ultra is now bearing very heavily with us; it is a grand variety for forcing, we do not grow any other at this season.

YOUNG VEGETABLES UNDER GLASS.—The plan of raising Cauliflowers, Brussels Sprouts, Leeks, Lettuces, and other vegetables under glass is an admirable one, and we have practised it for years. Just now when our young crops in the open are looking anything but bright, we have hundreds of young plants in shallow boxes under glass, and as these will be planted early in April they will form valuable early crops. This system should be followed by all who have the opportunity of doing so. The great point is not to place them out too soon, and see that they are well hardened first. If it is necessary to cover them at night always remove the protection early in the morning and admit abundance of air to them when the thermometer is over 40°.

PEAS.—Those sown in December in the open are now 4 inches high, others sown in February are well above the ground, and those reared under glass are ready for planting. Altogether we are well supplied with early Pea plants, and we do not attribute this so much to cultural advantages as timely attention and forethought. Sow more seed of main crop varieties as soon as the weather will allow. All our directions are given subject to this condition. The plan of sowing main crop Peas in trenches is an excellent one, but it is a mistake to begin it too early. We have secured some good Pea prizes from time to time, but one year we thought to surpass all our previous success, and we began by sowing our Peas in spring in deep well manured trenches. A wet season came immediately afterwards and three parts of the seed perished. Since that time we have ceased sowing in trenches until the end of March or beginning of April, then all are sown in trenches. They are thrown out as if for Celery and well manured, and all such crops bear the warm dry weather of July and August much better than any sown on the level ground, as dryness at the roots not only hinders development but it deteriorates flavour and generates mildew and other causes of premature decay. Make the trench plan a system from the time named, and all will be well. Plants which have been reared under glass may now be placed out. If they are in pots plant a little mass of them from 4 inches to 6 inches apart, and plants in turves or any other form may be kept at the same distance, as when they grow they will fill the rows. Give them rich soil, a warm sheltered position, do not disturb the roots any more than it is possible in planting, stake at once, and a good crop is sure to follow.

EARLY LEEKS AND CELERY.—Seed sown in boxes some weeks ago has produced plants which are now ready to be transplanted. Fill some shallow boxes with very rich soil, lift the young plants, and dibble them into the boxes at a distance of 2 inches from each other. Water, and place in a temperature of 65°, and an early supply of plants will soon be produced.

THINNING YOUNG VEGETABLES.—Of late we have had to keep the Carrot and Radish frames somewhat close, and this has induced the plants to develop top growth rapidly. Indeed they become crowded in a very short time, and great attention should be given to timely thinning. When this is neglected at first the crop suffers from it ever afterwards, and close attention to early thinning is of the utmost importance just now.

BROCCOLI.—The supply of these has been interrupted several times during the winter, and just now they are at a standstill, but the plants have stood the severe weather very well, and we shall yet have plenty of heads. Where the ground on which the plants are growing is urgently required for other crops, lift the Broccoli plants with a good ball of soil to the roots, place them in a cool shady corner with plenty of soil or old vegetable refuse over the roots, and they will produce their heads as freely as if they were still in their old quarters. A good sowing should now be made of Veitch's Self-protecting Autumn Broccoli. It is the best of all during November and December, and no garden should be without it.

TOMATOES.—Our earliest plants are those from cuttings inserted and rooted last October. Their crop is well advanced, and will be very valuable in a short time. All plants fruiting, or about to fruit, should be restricted to one or two main stems, kept well in the light, and supplied liberally with liquid manure. Keep successional plants growing freely.

Give them more root-room when necessary; do not allow them to branch into many leading stems, and they need not be forced too rapidly. The whole of the plants intended for open air culture should be advancing now, and a good supply of Laxton's open air variety would be found most useful in all parts of the country.

FRUIT FORCING.

PEACHES AND NECTARINES.—*Early Houses.*—The weather lately has been of the most wintry character, and if the protection of the outside borders has not been attended to they will have been chilled by the snow, which is certain to result in a check to the trees. Though the weather may be favourable there is yet danger of sudden frost and snow falling, therefore see that the protection is sufficient. In the earliest house the stoning process will soon be completed, when the final thinning of the fruit must be effected; then see that the inside border is kept thoroughly watered, mulching the surface with partially decomposed manure $1\frac{1}{2}$ to 2 inches thick, and the night temperature may be raised to 65° or 70° , 70° to 75° in the daytime by artificial means, and 80° to 85° or 90° from sun heat. Still attend to tying in the shoots as they advance, regulating them so as not to be too crowded, as by giving the young shoots plenty of room the ripening fruit receives more sun for colouring, and the wood becomes more solidified and better ripened for another year.

Succession Houses.—In these the routine will now be the thinning of the fruit where too thickly set, first removing those that are badly placed. This should be done gradually, as also should disbudding, commencing early, and persisting with it until no more shoots are left than will be required for furnishing the bearing wood of another season, or what is necessary for attracting the sap to the fruit, and for furnishing the trees that are extending. There must not be any lack of water at the roots of Peach and Nectarine trees in any stage of their growth, therefore be not deceived by the surface appearing moist, but afford water as required to keep the soil in a thoroughly moist state. Syringe thoroughly in all houses morning and afternoon except when the trees are in blossom, in which case maintain a gentle fire heat in dull weather so as to admit of moderate ventilation, as a circulation of rather warm (50° to 55°) dry air is conducive to a good set. If there are evaporation troughs keep them filled with liquid manure when the fruit is swelling freely after it has been thinned. This practice and sprinkling the borders occasionally at closing time with guano water, 1 lb. to 20 gallons of water, will assist in keeping red spider in check. Mildew sometimes infests the fruit and foliage, in which case flowers of sulphur must be applied to the infested parts. Aphides must be kept under by fumigation, having the foliage dry, and being careful not to give an overdose.

Late Houses.—The trees are in capital condition. The buds are only swelling in the case of trees from which the roof lights have been withdrawn, neither the wood nor buds having suffered in the least, but those, the roof-lights of which are fixed, are in a more forward state, and will need a genial warmth—enough at night to exclude frost, and in the daytime a temperature of 50° with ventilation, to insure well-developed flowers. This is essential to a good set after the anthers show clear of the corolla. Unheated houses should be very freely ventilated in bright weather, and some scrim canvas drawn over the roof when the sun is powerful will do much to retard the flowering, whilst its employment at night will insure safety from frost.

VINES.—*Early Houses.*—Colouring will be proceeding in the early forced houses. With a view to insure well-swelled berries, afford a thorough supply of tepid liquid manure, and mulch at once with 2 or 3 inches thickness of partially decayed rather lumpy manure. Nothing answers so well as stable litter having the strawy portion shaken out. This will mostly be sufficient for the Vines until the Grapes are cut, and the stimulus given the roots will secure healthy foliage, its retention being essential to prevent premature growth. Still continue damping at closing time for Black Hamburgs until they are well advanced in colouring, after which reduce the moisture gradually, not failing to maintain a circulation of warm air day and night. Those fortunate enough to have a house of Madresfield Court, which is an excellent early and midseason Grape for home and market, will add to the mulching advised a 3-inch thickness of clean dry straw, or preferably rough chopped straw, and exclude water from the house after the Grapes show a decided change of colour, securing a circulation of warm air constantly. Treated in this way it does not crack. It is superb in bunch, berry, and finish, and the quality unequalled by any except Muscat of Alexandria.

Succession Houses.—Disbudding, stopping, and tying the shoots will need attention, not allowing this work to fall into arrear. Stop two joints beyond the fruit where the space is somewhat restricted, allowing four or five where there is space for that extension, and allow the laterals to extend, so as to insure an even spread of foliage having exposure to light, avoiding overcrowding. After the space is occupied keep the growths stopped, as large reductions of foliage at one time are very prejudicial. On no account allow the thinning to remain undone a day longer than is necessary to ascertain the best set bunches. Free-setting varieties, such as Black Hamburg, may be thinned as soon as the berries are formed; but Muscats and other shy setters ought not to be thinned until the properly fertilised berries are taking the lead. No rule can be laid down for thinning, as the size of the berries varies in different Vines of the same variety. Healthy, strong Vines swell off much finer berries than those that are not so vigorous; but space should be left, so that each berry will have room to swell without wedging or crushing. Yet they must be close enough to retain the form of the

bunch when placed upon the dish. Vines in flower should have a circulation of warm rather dry air, and a temperature of 65° to 70° at night for Black Hamburg and similar sorts, and 70° to 75° for Muscats. The latter and similar shy setters should be brushed over with a camel's hair brush, so as to rid the stigmas of the glutinous substance about the time the blossom is fully expanded, choosing a warm part of the day after the house has been rather freely ventilated. Varieties deficient of pollen should have it applied, collecting it from those that afford it freely. When the Grapes have been thinned and are fairly swelling supply tepid water or liquid manure, and mulch with rather fresh lumpy manure a couple of inches thick, kept moist by damping daily, especially at closing time. Admit air early and liberally as the heat increases, seeking to secure stout short-jointed wood and thick leathery foliage. Close early, with plenty of atmospheric moisture, raising the heat from the sun to 85° to 90° , and allow the night temperature to fall to between 60° and 65° .

Late Houses.—If started as previously advised the Vines will be swelling their buds. Ply the syringe freely twice a day, or more if needed, seeking to secure a good break by closing the house with a genial humid atmosphere at a temperature of 75° . The sap rushing to the upper part of the rods will often cause the eyes to break unevenly, especially young Vines, unless the canes be brought into a horizontal position for a time. Let the inside borders be brought into a thoroughly moist condition. The outside borders must have sufficient protective material to prevent chill from snow and frost. A few inches thickness of stable dung freed of the rougher portions of straw is sufficient. Being lumpy, it will admit of the free access of the sun's warmth, and of rain and air.

We would again urge the importance of starting late varieties of Grapes without delay, as a longer period of growth is mostly all that is needed to produce good-sized and highly finished fruit and such as possess good keeping qualities. Syringe the rods several times a day, maintaining a moist atmosphere by damping the borders, &c., every evening, but not the Vines, as they should become dry at least once in the twenty-four hours. It is decidedly advantageous to cover the inside borders with fresh stable litter. Night temperature 50° to 55° , and 65° by day from sun.

Late houses of Black Hamburgs may be allowed to break naturally, it sufficing if the Grapes are thinned by early June and the fruit ripened in late September. Ripened early they are liable to lose colour and quality by hanging, which is not peculiar to Hamburgs but to all black Grapes with thin skins, though none lose colour so badly as Hamburgs.

THE BEE-KEEPER.

PRACTICAL BEE-KEEPING.

No. 6.

It has occurred to me that even now there may be some of my readers who do not know the dimensions of what is commonly known and spoken of as the "standard frame." The following is the description given in the "British Bee-keeper's Guide Book," and it is so concise and lucid that it may with advantage be reproduced. "The outside dimensions are 14 inches long by $8\frac{1}{2}$ inches deep, the top bar being three-eighths of an inch thick, the bottom bar one-eighth of an inch, and the side bars a quarter of an inch thick, the width being seven-eighths of an inch." This is the Association standard frame. In several respects the frame might be improved, but it is so generally used in its present form that I am convinced that the wiser policy is to make our frames according to these dimensions, and remedy any defects by other means. The enormous advantage of having one sized frame almost universally used cannot be overrated!

The sections which are most generally used and are most readily saleable are the one-pound size. The dimensions of these are $4\frac{1}{4}$ by $4\frac{1}{4}$ by 2 inches. These may be purchased at 11s. for a five-hundred case. This year a rage seems to have set in for narrower sections. Any one who would like to try a narrower section may purchase a few of the $4\frac{1}{4}$ by $4\frac{1}{4}$ by $1\frac{1}{2}$ inch size. No alteration in either "racks" or "cases" will be necessary. The old racks are equally suitable for either size, except that when the narrower size is used every rack will hold four in a row where it has hitherto held three only. I

hardly expect to reap any benefit from the change, but for the sake of testing the relative values of the two sizes a few will this year be used in my apiary, and the result shall be reported at the close of the year's work.

In constructing hives to winter out of doors, unless double walls are used the wood must be 1 inch thick before it is planed. Many bee-keepers think that single-walled hives winter bees equally as well as those with double walls. Mr. Cheshire speaks very emphatically in favour of the space between the walls being filled with cork dust, and points out that a dead air space is of comparatively small value. There is no hive which I can describe or claim to be the best of all, but in view of the fact that there may be some who would like to know how to construct a simple hive at a small cost, it is my intention to describe in detail how to make a hive which will combine all the essential necessities for successful management with simplicity and cheapness. In such a hive there will be nothing original, nothing new. A simple case to contain a certain number of frames and so constructed as to be useful for all purposes for which it may be required. The old question will of course be raised—What are the essential necessities?

The "Woodbury hive" is still in use in some parts of this country: it is either made of wood or straw, and usually contains ten frames. These frames are smaller than the standard frames above described; the dimensions are 13 by $7\frac{1}{4}$ inches inside measurement, with projections of five-eighths of an inch at either end; the inside measurement of the hive itself is $14\frac{1}{2}$ inches square and 9 inches deep. The most novel feature in the hive is that between the tops of the frames and the under side of the crown board there is a three-eighths bee space left, so that the bees can at all times travel over the top bars of the frame and so have free access to the different combs. This frame is less suitable to the requirements of the apiary than the "Standard," and it is only here described because some may desire to possess a hive of the kind which gave great results in past years. The "Woodbury super" is 13 inches square and 6 deep, and contains eight bars, and is made of glass.

Every rack of sections will require "dividers." These are made of wood or tin; if of wood they must be cut as thin as possible, wood are the better. Those used in my apiary stretch from side to side of the rack and rest on pieces of wood quarter of an inch high laid along the sides of the bottom of the racks. The dividers must be wide enough to extend within a quarter of an inch of the top of the sections, and will for the $4\frac{1}{4}$ by $4\frac{1}{4}$ sections be about 13 inches long by $3\frac{3}{4}$ inches wide. Two-pound sections are occasionally used, but unless in a locality where a special demand exists for these larger sizes it will be wiser to discontinue their use, as they are much less readily saleable, and there is considerably more risk in transit. Large indivisible supers are of little value, and are rarely saleable at a good price, although occasional purchasers may still be found for the "Crystal Palaces" in which bee-keepers only a generation ago used to exult. Large divisible supers, such as the "Stewarton," are easily sold in some districts and are very beautiful to the eye, but for general purposes they hardly seem to suit the taste of the consumer of to-day. My experience does not extend to Scotland, where these large divisible supers seem to be easily sold at good prices. It has never been necessary for me to send my honey far from home when I wish to sell it; it is generally sold a year before it is produced.

The above notes are somewhat discursive, and are not

arranged so methodically as they might have been, but this article is meant simply to fill up, as it were, the interstices left in preceding contributions, and so make all who have followed me in former advice to more readily grasp what has been written in the past, and to prepare them to receive what I hope to write during the next few months on the practical management of the apiary.—**FELIX.**

BEES LEAVING THEIR HIVE AFTER BEING HIVED.

"FELIX," some time ago, when speaking of bees leaving their hive after being hived, said: "Why it is has never yet, so far as I have heard, been explained." "Felix" may not have observed my remarks on the subject, but I have frequently alluded to it, and in my essay (page 65) some of my observations are recorded, and may be summed up in the following:—The bees before swarming may have discovered some untenanted combs, which they, after swarming, will attempt to occupy, in spite of being provided with a suitable hive, unless the said combs have been made distasteful to the bees by carbolic acid. Bees swarming from a hive having little honey will be liable to leave their hive unless immediately provided with food. Stranger bees and a duality of queens, either from their own or another hive, causes the queens to be enased or balled when the bees leave the hive, as if by stratagem to save their queen. The foregoing are undoubtedly some of the direct causes of bees leaving their hive. But there are other causes. One of them is that the swarm is often queenless—oftener than many bee-keepers suspect. The following is an instance which occurred here last summer, and which will suffice for explanation. The hive in question was a top swarm about six weeks hived, when it threw a "virgin" swarm. It was hived in a neighbour's garden, and he appropriated the swarm, joining it to one of his own. In this case, under these circumstances, the bees remained, and fraternised with their neighbours in their new abode; but had they been placed in an empty hive they would certainly have returned. An examination made on the old hive shortly thereafter revealed the fact that the queen regnant, now very heavy and of large size, had never left the hive, and the queen cells were being destroyed. Such cases are by no means common, but are more frequent than many may suppose.

Some years ago I had a hive of bees that persisted in swarming in spite of every precaution on my part to prevent it. At length the old queen was deposed, as well as every royal cell and young queen, unless one, which, according to the rule in swarming, should have ended it; but, strange to say, it did not until it had swarmed, and was returned five times. Cases of this nature are so rare that bee-keepers need be under little apprehension that any of their hives will suffer from such an occurrence. My motive for mentioning it is simply to show the strange aberrations that sometimes take place, and to induce bee-keepers to search in a wider field than they do for an explanation of the mysteries that occur.—A LANARKSHIRE BEE-KEEPER.



°° All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

LATE INQUIRIES.—It is necessary to again remind correspondents that letters arriving on WEDNESDAY MORNING cannot be answered in the "next issue," which is then far advanced for press.

Address (A Lady Reader).—The address you require is Charles Whitehead, Esq., Barming House, Maidstone.

Strawberries in Pots (C. B. B.).—The precise information you require was published at the top of the first column on page 221 last week. It is not necessary to remove your plants from the present frame into one still warmer unless you desire to expedite the ripening of the fruit. The variety you are growing is very useful, but cannot be made to produce fruit as late as that of Sir Joseph Paxton and Marguerite.

Lælia purpurata (A. B. C.).—The peat should be covered with growing sphagnum, and this will give a good indication as to the water required, as it must be kept in a fresh healthy condition. Only sufficient water is needed to keep the peat moderately moist to prevent the growths suffering in any way, but it must never be allowed to get into a soddened state. After the flowering, when the growth is commencing, more water should be supplied. In midwinter, when the days are short and there is little sun heat, less water is requisite than at the present time, as with bright sun the plants are liable to suffer if supplied too sparingly.

Sawdust for Mulching (F. J.).—We have not used sawdust from stables for mulching the soil over the roots of fruit trees. We think it might be

safely used for the purpose, but doubt it would be beneficial applied to light soil, which it would make still lighter, but it would have a tendency to improve the mechanical condition of heavy land. You will have found the information you require on page 320 as to shortening long spurs on fruit trees, which number had not reached you when your letter was written.

Gladioli in Pots (William).—We have seen numbers of Gladioli admirably grown in pots and effectively employed in conservatory decoration. In order to have the flowers early the plants may be started in frames, eventually plunging the pots in ashes or cocoa-nut fibre refuse, and growing the plants in the open air as if they were Chrysanthemums. One large corm may be placed in a 6-inch, and three medium-sized corms in a 7-inch, and a greater number in larger pots if bold masses are desired.

Vine Leaves Withering (Somerset).—If all the Vines are of the same variety the shrivelling of the foliage of one only must be due to some local cause. We once knew a similar case, and the evil was traced to the action of frost on the stem outside the house through the slipping of the hyband with which it was wrapped. The cold arrested the flow of sap. We have also known mice nibble the stems of Vines and prevent sap flowing with sufficient freedom from supporting these growths. In the case of your Vine, the sap has been sufficient to support the sub-laterals but not the large leaves, from which the transpiration of moisture would be considerable.

Rose Sporting (Frank Ashman).—It is extremely unusual for a Rose to throw such a distinct sport as the bloom you have sent represents—a clear yellow Rose from Souvenir d'un Ami. Are you certain that no one has inserted a bud of Mûrchal Niel? The specimen resembles a small bloom of that, and it is less pointed than the blooms are of the variety from which it is cut. Assuming it is really a sport, by all means encourage it to grow and establish it by budding on separate stocks, then when you obtain good well-developed blooms submit them to the Floral Committee of the Royal Horticultural Society.

Market Gardeners Exhibiting (J. R. W.).—We do not think that as a rule market gardeners should be allowed to compete with gentlemen's gardeners and amateurs in classes from which nurserymen are excluded. A market gardener is as much a trader as a nurseryman is, and as such can purchase produce for exhibiting, but whether he does so or not we think he is equally with a nurseryman out of place in the amateur classes. If it is the intention of your Committee to place market gardeners on the same footing as nurserymen, you can inform them of that when they send in their entries; then if they stage their produce in wrong classes the judge can be instructed to pass them when awarding the prizes.

Concentrated Manures (W. J.).—The mixture to which you refer has given great satisfaction to the accomplished author of our Home Farm articles, who has proved their value by experience; at the same time other excellent authorities are of opinion that muriate of potash is more economical than the nitrate, and better also than kainite or sulphate of potash. By all means try the dealer's mixture against the other, employing either the nitrate or muriate of potash. Mr. Cooke, you would perceive on page 204, used the latter with extraordinary results. You might perhaps like to try the two forms of potash on separate plots, expending an equal amount on each. Such experiments are both interesting and instructive.

Vine Borders Covered with Galvanised Iron Sheetting (J. D.).—It is very unlikely to bring mildew on early Vines, but will probably prevent it. The most likely cause of the mildew is the outside border being "wet and soapy," which has thrown the Vines into ill health. We advise, as a remedy, lifting the Vines, or rather the roots in the outside border, removing the old soil, and rectifying the drainage and relaying the roots in fresh compost nearer the surface. This may be done in August with Vines that ripen the Grapes in May. If covered with a good thickness of dry leaves and litter before forcing is commenced there is no danger of the roots being injured by cold.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (S.).—1, *Echium fastuosum*. 2, *Gynura aurantiaca*. (B. W.).—*Pittosporum undulatum*.

A Superbody (F. G.).—"Felix," in reply to your letter, writes:—"A 'superbody' is a hive placed upon another hive for the purpose either of enlarging the brood nest or of giving room for the storing of surplus honey. Many bee-keepers think that a hive containing ten standard frames is large enough for the 'brood nest.' They think that at supering time every cell in these ten frames should be filled with 'brood.' I think that bees are only fit for supering when the body hive contains at least ten pounds of honey and the other cells are filled with brood and pollen. Now, if the size of a brood nest consisting only of ten standard frames is diminished by several combs containing a considerable quantity of honey, further room must be given for the purpose of giving the queen an opportunity of extending the brood nest, according to her capacity for brood production. If a hive some 12 inches in depth and 18 inches in diameter is used supers may be placed when the bees are ready to work in them. If a hive of ten or twelve frames is preferred it is wiser to place a 'superbody' also of ten or twelve frames of the same size above the 'body hive,' and thus enable the queen to extend her brood nest and the bees to store sufficient honey, to which the bees can at all times have easy access without cramping the queen, and consequently ruining the stock. Those who use hives containing twenty or other large number of frames will not need to use superbodies, it will suffice for them to place upon the stocks when in proper condition 'supers of frames,' from which the honey may be run or extracted. I have had hives of ten standard frames which have given good results, but good results are not what I require. I want the 'best' results, and so it may be expected do all bee-keepers. On a strong stock managed on the 'non-swarming' system at least five racks of twenty-one 1-lb. sections should be in various stages of progress at once, and unless the season is unfavourable nearly every section should be finished without trouble. The yield of section honey will not be diminished by giving room for an extended brood nest;

it will be increased, and the combs in the superbody will not—if the section arrangements are properly carried out—contain much honey. If you have no frames of comb these frames of foundation may be used, and will be invaluable as spare combs upon which to hive driven bees or for use in superbodies in the following year, even if it is not thought desirable to winter the stock on two tiers of frames. A strong stock will, with a little aid, draw out sheets of foundation very quickly.

COVENT GARDEN MARKET.—MARCH 23RD.

No alteration. Business very quiet.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples	2 0	5 0	Melon	0 0	to 0 0
" Nova Scotia and			Oranges	0 0	12 0
Canada, per barrel	10 0	13 0	Peaches	0 0	0 0
Cherries	0 0	0 0	Pears	1 0	2 0
Cobs	100 lb.	60 0	Pine Apples English ..	1 6	2 0
Figs	dozen	0 0	Plums	1 0	2 0
Grapes	lb.	4 0	St. Michael Pines ..	2 0	5 0
Lemons	case	10 0	Strawberries	8 0	12 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes	dozen	1 0	Lettuce	dozen	1 0
Asparagus	bundle	8 0	Mushrooms	punnet	0 6
Beans, Kidney ..	per lb	1 6	Mustard and Cress	punnet	0 2
Beet, Red	dozen	1 0	Onions	bunch	0 3
Broccoli	bundle	0 0	Parsley	dozen bunches	2 0
Brussels Sprouts ..	1/2 sieve	2 0	Parsnips	dozen	1 0
Cabbage	dozen	1 6	Potatoes	cwt.	4 0
Capsicums	100	1 6	" Kidney	cwt.	4 0
Carrots	bunch	0 4	Rhubarb	bundle	0 2
Cauliflowers	dozen	3 0	Salsify	bundle	1 0
Celery	bundle	1 6	Scorzonera	bundle	1 6
Coleworts	doz. bunches	2 0	Seakale	per basket	1 6
Cucumbers	each	0 4	Shallots	lb.	0 3
Endive	dozen	1 0	Spinach	hushel	3 0
Herbs	bunch	0 2	Tomatoes	lb.	1 0
Leeks	bunch	0 3	Turnips	bunch	0 4

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi ..	dozen	9 0	Ferns, in variety ..	dozen	4 0
Arbor vitae (golden)	dozen	6 0	Ficus elastica ..	each	1 6
" (common)	dozen	6 0	Foliage Plants, var.	each	2 0
Azalea	per dozen	24 0	Hyacinths	per dozen	6 9
Begonias	dozen	4 0	Lilies Valley	dozen	12 0
Cineraria	per dozen	9 0	Marguerite Daisy ..	dozen	6 0
Cyclamen	dozen	12 0	Myrtles	dozen	6 0
Dracena terminalis,	dozen	30 0	Narciss (various) ..	dozen	12 0
" viridis	dozen	12 0	Palms, in var. ..	each	2 6
Erica, various ..	dozen	9 0	Primula sisensis ..	per doz.	4 0
Euonymus, in var.	dozen	6 0	Solanums	per doz.	9 0
Evergreens, in var.	dozen	6 0	Tulips	per doz. pots	6 0

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Anthrills	12 bunches	2 0	Lily of the Valley, 12	sprays	0 9
Arum Lilies	12 blooms	4 0	Marguerites	12 bunches	2 0
Azalea	12 sprays	0 6	Mignonette	12 bunches	4 0
Bouvardias	per bunch	0 8	Narciss, Paper-white	bunch	0 4
Camellias	blooms	1 6	" White English, bunch	1	3 1 6
Carnations	12 blooms	1 0	Pelargoniums, per 12	trusses	0 0
"	12 bunches	0 0	" scarlet, 12 trusses		0 6
Chrysanthemums ..	12 bunches	0 0	Roses	12 bunches	0 0
"	12 blooms	0 0	" (indoor), per dozen		1 0
Cornflower	12 bunches	0 0	" Tea	dozen	2 0
Cyclameu	12 blooms	0 4	" red (French) ..	dozen	2 6
Dahlias	12 bunches	0 0	Parma Violets (French)		6 0
Epiphyllum	doz. blooms	0 6	Poinsettia	12 blooms	0 0
Encharis	per dozen	4 0	Primula (single) ..	per bunch	0 4
Gardenias	12 blooms	12 0	" (double)	per bunch	1 0
Hyacinths, Roman, 12	sprays	1 0	Stocks, various ..	12 bunches	0 0
"	12 sprays	4 0	Tropaeolum	12 bunches	1 6
Lapageria, white, 12	blooms	2 0	Tuberose	12 blooms	2 0
Lapageria, red ..	12 blooms	1 0	Tulips	doz. blooms	0 6
Lilium longiflorum, 12	blms.	0 0	Violets	12 bunches	1 6
Lilac (white), French, bunch		6 0	" Czar, French, per bunch		2 0



REFORM IN AGRICULTURE.

To improvements in the direction pointed out in our last paper we must add many others in order to effect a reform calculated to be thorough in every branch and detail of a farmer's calling. It is undoubtedly owing to a want of enterprise and energy that we have allowed so much that is profitable in agriculture to be wrested from us by farmers on the Continent and in the Colonies. Shrewd men of business cater for popular wants, for requirements of a sure, lasting, and frequently growing

nature. Only a day or two before writing this article we met a clever and successful farmer, who at the ripe age of eighty-five still farms 1000 acres of land, holding his own under the depression in a manner that would put to shame many younger men. He had been to invest some of his surplus capital in the shares of a flourishing water company. "For," said he, "I knew I could not go wrong in that direction; water must always be wanted, and no invention can set aside or curtail its use." Right enough, was he not? and we doubt not that the shrewd intelligence and sound common sense brought to bear upon that investment have enabled him to hold his own in farming even in these hard times.

We want to see more of sound business habits in relation to the manufacture and sale of farm produce. How frequently do we see samples of inferior corn offered for sale! They are either dirty, light, or of a sort which buyers know to be inferior and will not give a remunerative price for. Now, to grow an inferior sort of corn or to offer badly cleaned samples for sale is suicidal. A little thought would soon show that the pure samples of our leading corn merchants are only to be had by careful selection and thorough cleaning. Said a farmer in our hearing recently, "Forty shillings a bushel was the price Webb would have given for my Red Clover seed if there had been no Dock or Plantain seed among it, and I had to take 5s. a bushel less money for it," or in plain English he suffered a loss of from £1 to £3 an acre from foul seed.

Let it not be forgotten, however, that the careful selection of seed must go hand in hand with the high cultivation of the soil. Quite in vain is it to pay a high price for Giant or Pedigree Wheat if the soil is not dry, clean, and fertile; depend upon it fine Wheat ears are never grown in poor soil, and for farms fallen out of cultivation we avoid using choice sorts of corn during the first year or two of reclamation. This is a very simple matter not at all difficult to understand, yet we fear that much money has been wasted upon the purchase of choice seed for land so low in condition as to prove quite unsuited to its culture. Failure follows, leading to an unjust outcry about highly coloured descriptions of seed merchants. Well might they retort by showing how faulty practice on the part of the purchaser led to inevitable failure.

The same reasoning applies to the management of live stock. Procure only the best, fatten quickly, and sell at once when they are ready for market. Some five months ago we purchased some home-bred bullocks for £8 apiece; by close attention to giving them full advantage of shelter, cleanliness, and a liberal diet consisting entirely of food grown upon the farm, we were able to sell them recently for £21 5s. a piece. The farmer of whom we purchased them has still got some of the same age, the best of which are not now worth more than £9 apiece, simply because they have been kept in a state of semi-starvation all the winter. A diet of unchaffed Barley straw and winter quarters in a yard open to the north-east accounts for the low condition of beasts that should now be ripe for the butcher. Need we wonder that this farmer was loud in complaints about hard times, and is behind with his rent? In pleasing contrast to this slovenly practice was the sight of some 300 pigs at the homestead of another tenant farmer who keeps forty breeding sows, and who told us that he got enough profit from his pigs to pay the whole of the labour expenses of his farm. The severe losses from swine fever which have been so general will, we hope, induce greater atten-

tion to the importance of cleanliness in pig management. Pigs may be said to answer better than any other live stock at the present time. Recent quotations of prices at Smithfield Market, per stone of 8 lbs. were:—

				s.	d.		s.	d.
Beef	...	...	...	2	0	to	3	
Mutton	...	...	...	2	4	"	4	
Veal	...	...	...	3	8	"	4	8
Pork	...	...	...	3	0	"	4	6

Of pork the skin, head, and feet are weighed in, but of other animals the hides, feet, and head are not weighed, and therefore pigs have an advantage as a saleable commodity which should not be overlooked, as that advantage is clearly on the side of the farmer and not on that of the butcher. It should also be remembered that pigs of the size known as "Londoners," are under good management ready for market at ages ranging from four to five months, when they realise a better price than older pigs.

WORK ON THE HOME FARM.

Advantage has been taken of the dry frosty weather to clear off a large quantity of faggots and timber from the park and meadows. Under ordinary circumstances this work would be done in midwinter, but we have had so much extra tree trimming and timber felling that the clearance could not be done sooner. So important is it to get timber off grass before growth begins that we had to make a special effort to finish such heavy extra work in time to avoid injury to pasture. The culture and general management of timber is a branch of estate work worthy of greater attention and care than is often given it. We regret to see mismanaged and neglected timber so frequently, for our work of estate management takes us far and wide, and we see much of other estates, and our own practice renders the eye critical. Planting, trimming, thinning, are of equal importance among trees. In planting there is a very general wish to produce a certain immediate effect: this is correct practice, provided care is taken to plant for the future as well. We must so plant permanent trees as to allow ample space for full development, as well as for shelter and picturesque grouping. In belt planting this winter diagonal rows of trees run through the entire length of each belt. Twenty-six sorts of trees have been so planted, one distinct sort to a row, and between such rows alternately we have a mixed row of Larch and Yew alternately with a mixed row of Box and Holly. This arrangement is continued throughout the entire belt, our object being to have the Larch as nurses, and Yew, Box, and Holly as game covert. The permanent trees used are Wych Elm, Scotch Fir, White Birch, Douglas Fir, Common Oak, Weymouth Pine, Horse Chestnut, Pinus Cembra, Lombardy Poplar, Spanish Chestnut, Austrian Pine, Thuia gigantea, Pinus Laricio, Beech, Common Silver Fir, Robinia, Pinus excelsa, Norway Maple, White Spruce, Abies Morinda, Lime, Picea Pinsapo, Sycamore, Picea Nordmaniana, Plane (*P. occidentalis*), and Cedar of Lebanon. The last named tree was introduced in the belts to carry on a line of Cedars round the whole of the park. Some of the old Cedars have been much broken by snow this winter, and it is worth knowing that *Cedrus atlantica* suffers very little from damage in this way. From our experience of the three *Cedrus*, Libani, *atlantica*, and *Deodara*, we are convinced that *atlantica* is the most suitable for general planting. It is very ornamental, grows very fast, and under careful trimming its bole soon becomes massive and imposing.

METEOROLOGICAL OBSERVATIONS.

GARDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet.

DATE.	9 A.M.					IN THE DAY.					RAIN.
	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1887.											
Mar. h.											
Sunday .....13	30.160	31.0	30.2	N.	37.1	41.0	24.2	81.3	17.4	—	
Monday .....14	29.951	29.9	28.3	N.	36.3	41.8	22.4	79.7	18.2	0.050	
Tuesday .....15	29.802	31.2	32.8	N.W.	35.9	34.3	27.8	38.6	23.8	0.373	
Wednesday .....16	29.915	33.1	32.7	N.E.	35.7	42.9	28.6	87.3	31.8	—	
Thursday .....17	30.099	32.3	31.9	N.E.	35.4	38.4	24.2	67.6	21.3	—	
Friday .....18	30.209	33.5	31.3	N.	35.3	41.1	26.1	82.9	22.2	—	
Saturday .....19	30.315	33.2	31.3	N.	35.2	41.4	23.1	82.6	19.2	—	
	30.070	32.3	31.2		35.8	40.1	25.5	74.7	22.0	0.423	

* The thermometer was covered by the snow which fell early in the night.

REMARKS.

13th.—Cold, bright, and clear.

14th.—Bright morning, cloudy a little in afternoon, and enough snow fell about 4.30 P.M. to whiten the ground.

15th.—Snow about an inch deep at 9 A.M., and falling all day and part of night; depth at 9 P.M. nearly 5 inches.

16th.—Snow 5 inches deep at 9 A.M.; glorious day, melting the snow very rapidly.

17th.—Bright and fine early, frequent slight snow showers all day, solar halo in afternoon.

18th.—Very bright early, sunshine with occasional slight snow showers during day.

19th.—Fine and bright, with flakes of snow falling occasionally.

An extremely wintry week, with an unusually heavy fall of snow. With one exception the coldest week of the year, the average minimum temperature being the lowest for any week. Six degrees colder than the preceding week, and ten degrees below the average.—G. J. SYMONS.



31	TH	Royal Society at 4.30 P.M.
1	F	
2	S	Royal Botanic Society at 3.45 P.M.
3	SUN	PALM SUNDAY.
4	M	
5	TU	
6	W	

THE SPRING SHOWS.

THE last fortnight in March reminds us that the exhibition season has again commenced, to be continued with scarcely any intermission until December. The latter month, with January and February, forms the only period when the horticultural exhibitor has no special calls upon his time and attention, but from March onwards there is a succession of shows of more or less importance. The exhibitions held recently in the metropolis, and at some large provincial cities like Liverpool and Bath, have been very satisfactory, the two latter especially so. In addition to these we have in and near London special displays at the principal nurseries, such for example as Amaryllises, bulbs, and Orchids at Messrs. J. Veitch & Sons' and B. S. Williams' establishments; bulbs and miscellaneous plants at Messrs. W. Cutbush & Sons; Orchids and general flowering plants at Messrs. J. Laing & Co., H. Cannell & Sons, with many others. At this time of year the Hyacinths constitute the great feature both at the nurseries and the exhibitions, but they have not been quite so fine as usual as regards size of spikes, although there has been a more general uniformity and fewer rough specimens than is sometimes the case. Another very pleasing character in all the contributions has been the freshness and brightness of colours, which for exhibition purposes has rendered them particularly welcome. Despite the formality of long rows of Hyacinths rising tier upon tier from the stages, they are indispensable at these early shows, and their individual beauty compensates for their collective formality. At the same time it is regrettable that some attempt is not made to vary the mode of arranging such plants. At present they are either placed in the parallel line system, or they are "heaped" together with a number of other brightly flowered plants that effectually "kill" each other, and it is difficult to say which is preferable. An exhibitor recently attempted a group of the latter kind, in which, by a plentiful use of Azaleas, Daffodils, and Cytisuses, the Hyacinths were rendered dull-looking objects, and the general effect was a gaudy mass of conflicting colours almost painful to contemplate. In a tastefully arranged conservatory Hyacinths can be employed to advantage by a judicious association with Ferns, Lilies of the Valley, and other white or soft-tinted flowers, and there is no reason why something of the kind should not be seen at exhibitions.

The varieties of Hyacinths are not increased with the same rapidity as many other popular plants, and the Dutch growers seem to find it difficult to improve upon some of their older productions. Comparatively few novelties make their appearance each year, and of these

but a small number take a place amongst those of proved merit. A dozen varieties that are notable for their uniform good condition in different collections and imported from different growers are the following, all single varieties:—La Grandesse, pure white, very large bells, and handsome massive spike; King of the Blues, very dark rich blue; Lord Derby, pale blue, fine spike; Koh-i-Noor, pink, massive spike; Charles Dickens, blue, light centre, handsome; King of the Blacks, intensely dark bluish black; Norma, delicate pale pink, very large bells, recurving segments; Baron Van Tuyll, bright rich blue, good spike; Vuurbaak, bright red, compact spikes, very fresh and good everywhere; King of the Yellows, bright clear yellow, compact spike; Ida, pale yellow, good; and Roi des Belges, bright rosy red, very fresh and effective.

Tulips have not been so numerous represented this season, but Daffodils in all their varied forms have occupied great space at the London exhibitions, and prove how popular they have become within the past few years. From the giant forms of the large Trumpet Daffodils to the diminutive and graceful Bulbocodiums and Corbularias the range of variation is sufficient to gratify anyone, and the gradations in many cases fine enough to puzzle even the specialists. Admirably grown Cyclamens have been shown, but we are now so accustomed to seeing the vigorous "market plants" at exhibitions that they do not attract so much attention as they would have done a few years since, when really first-rate Cyclamens were not so frequent in private gardens as they are at present, thanks in a great measure to the rapid and excellent system of culture adopted by trade growers.

The Roses have made their first appearance of the season, not of course in their perfection of form and colour, but beautiful reminders of what are to come later on, and excellent for the time of year. The charming varieties of the Polyantha type, Paquerette and Mignonne, have been much admired, and well adapted as they are for culture, either as standards or dwarfs and for early forcing, they might be advantageously grown much more extensively in gardens. They are exceedingly graceful, very floriferous, and easily grown, and it is to be hoped the rumour is true which leads us to expect several important additions to the group this season. Adding to these the Orchids, the Amaryllises, the Imanthophyllums, and the Cinerarias, it will be seen that there has been no lack of material to produce the bright cheering displays for which the spring shows are celebrated.

SPRING TREATMENT OF STRAWBERRY PLANTS.

THERE are many gardens where Peaches, Apricots, and other choice fruits cannot be grown with advantage, but Strawberries can be grown nearly everywhere, and with the exception of the Gooseberry they are more popular than any other fruit. I know scores of amateurs who find it very difficult to manage Apples and Pears satisfactorily in their localities, but the Strawberries never fail to reward them handsomely for the attention they receive, and a good Strawberry bed is always a part of the garden which is regarded with pride by small holders. So far, I do not remember Strawberry plants in the open to be more backward than they are at present. As yet they are more dead than alive in appearance, and their promise of being remunerative two months or three months hence is remote enough; but it

is astonishing how rapidly they progress in the genial weather of April and May. I am not inclined to find fault with the backward state of Strawberries in March, as they are well rested, and it argues in favour of their starting freely and strongly into growth as soon as favourable weather occurs. Late growth also enables those who have been neglecting their plantations to put them in good order before the season is too far advanced.

If the beds or rows are old, and have occupied the same ground for many years, annual dressings of manure should be applied to them, and these may be put on now with as much benefit as at any other time. If the plants are growing close together in beds or wide rows manure, if forked in at the outer edge, would not benefit the plants generally; but in such cases, if the manure is not dug in but simply spread amongst the plants as a surface dressing, it will improve them greatly. Short manure is the best for the purpose, as it soon settles down in the vacancies amongst the plants, and any which remains is by fruiting time washed so clean that it acts as a mulching and keeps the fruit from the soil. Where the plants are growing singly a small quantity of good manure should be placed round each plant. Where they are in narrow rows the manure may be forked in just under the surface and as close to the roots as possible.

In many cases Strawberry plants are allowed to grow until all trace of a row or bed has been lost, and such plants soon produce fruit of a very inferior kind, but they may be improved wonderfully by cutting the plants well in with a spade, clearing the detached part away and manuring heavily along the sides of the plants which remain. This is an operation which should also have immediate attention. Some of our Strawberries which are growing in rows have extended until the rows became too close, and one day this week we rooted up every alternate row, cleared them away, and manured and forked the ground. Now the remaining rows have plenty of space, and this and the manure will cause them to improve so much as almost to become young plants of the best quality, while the crop this year will be a full one.

I do not believe in the system of renewing Strawberry plantations every three or four years. Some of the most profitable plantations we possess have occupied their present quarters for fourteen years, and now that we have been dressing them as above indicated the crop this year will, I am sure, be as good as ever. I daresay some of your readers who intend forming a new Strawberry bed last season may have allowed the time to pass until it was too late to do so. This is a common occurrence with many garden crops, but in the case of Strawberries they need not wait until the autumn again before planting, as this operation may be carried out in spring as well as in autumn, and much better now than in late autumn. By planting at once the young plants will soon grow and make much progress in the early summer months. They may not fruit much this season, but they will be in good condition for bearing full crops next year. In large gardens where ground is plentiful cultivators may plant at a distance of 18 inches or more apart in rows, but in small gardens where every inch of ground is valuable I would not follow this plan, but I would plant them about 6 inches apart in the form of beds 4 or 5 feet wide, and a much heavier crop would be obtained from a given space in this way than by wide planting.—A KITCHEN GARDENER.

DAMPING HOUSES.

IN regard to "G. L. B.'s" question on this subject opinions differ, but a house that is heated with flues will require more damping in order

to maintain a sufficient supply of moisture than a house heated with hot-water pipes, for a hot dry heat is most injurious to the majority of plants. No harm can be done in syringing Vines, especially where flues are the only means of supplying the heat, as it will assist growth and prevent the well known enemy the red spider becoming too abundant. Your correspondent syringes Ferns at night; but in this I do not agree, for by damping them so late it will be impossible for them to become dry before it is dark, and consequently the fronds would suffer from damp. In cases like this I recommend damping the stages and floors once or twice in the evening when going round.

I have learned from experience that syringing Chrysanthemums is very beneficial in assisting their growth. In conclusion, I hope some of your able correspondents will take this matter up and give us their opinions, by which we may be able to profit.—R. KIRBY, *Hammerwood*.

ROSE-GROWING FOR BEGINNERS.

(Continued from page 227.)

STOCKS.

THE question of stocks and their varieties is one that must interest the beginner before he advances very far in Rose-growing. With a knowledge of them he will be able to select the kind which will be most suitable for his land and his requirements, at the same time avoiding those which would be useless. The various kinds of stocks are standards, dwarfs, cuttings and seedlings—all these are Dog Roses—and Manetti and Greffier stocks. These latter two are always, as far as I know, dwarfs.

Standards are only suitable for sheltered situations. In windy or exposed places it is difficult to keep them on their legs, and even

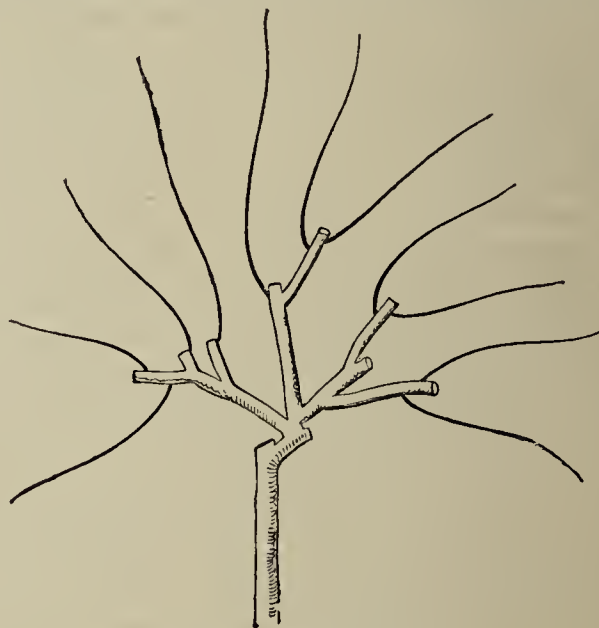


Fig. 43.—A standard Rose tree.

if securely staked and tied the branches are always getting broken off during heavy gales, disfiguring the plant, and leading to disappointment and annoyance. The reader will have gathered from my article on pruning that it is much more difficult for a beginner to prune a standard than a dwarf plant. If the plain truth be told, it really is a fact, that if exhibition blooms are desired, the proper way to prune a standard is to cut the head off every spring, leaving about three buds on each shoot. When standards came into fashion it became necessary for the nurseryman to bud all the varieties on these stocks, the result being, in most cases, the production of a lot of plants which resembled nothing in this world so much as mops on sticks. Strictly speaking, only such varieties as are of long branching habit are suitable for growing in this way. When well done, and planted in their proper position, there is no doubt that standard Rose trees are beautiful objects, but we see the mop-stick style of growth twenty times as often as we see the other. Fig. 43 gives my idea of what a standard Rose tree should be. With all its disadvantages, and there are many, the standard has one solitary advantage—the points where the buds are inserted, being so far from the ground, and in such a convenient position for the operation, the business of budding standards is really budding made easy. It is when we get down on our knees in the endeavour to insert the buds into a lot of seedling Briars or Manettis, that we begin to find out what a very painful operation budding is, especially if the operator is at all stout, or is troubled with a determination of blood to the head.

If we want a lot of standard stocks for our own budding, the best way to go about the matter of procuring them is to commission

some labourer in the neighbourhood to dig them out of the hedges round about. The wild Briar, like most other varieties of Roses, is constantly renewing itself by sending up from the base strong shoots. These in their second year are what we want; they should be trimmed off close at the root, and it will only end in a wholesale lot of suckers being produced subsequently if any of the club root be left. The best way to remove this is with a saw, afterwards making the part smooth with a sharp knife. Fig. 44 at *a* shows a nice shoot ready for planting, and it will take root all the better if it is planted with about a foot of the stem in the ground; but if it will be required to stand permanently where planted, then it should not be put in so deep; the nearer the roots to the surface the better, as I said before. Please note that the club root has been removed entirely. A shoot like this one, even if it has been cut from the hedges without any root whatever, may still be put in, after carefully cutting out all the buds on the part which will be below the surface when planted, and in most cases it will take root and grow like the first mentioned. At *b* we see the kind of root favoured by many nurserymen; these gentlemen will in time no doubt learn wisdom in the matter. The small black lines springing from the root here show the subsequent crop of suckers which will in due time arise to reward anybody who is foolish enough to plant stocks with roots like these. The dotted lines show where the branches to be budded during the following season will grow. All other buds which will break up and down the stem during the growing

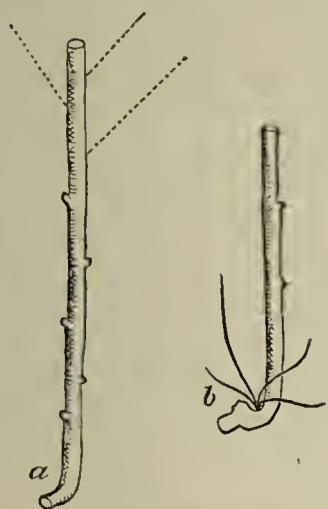


Fig. 44.—Briar stocks.

period must be rubbed off as soon as they become apparent, so that all the vigour of the stock will go to strengthen the shoots that are allowed to remain.

For the propagation of dwarf, or ground-worked plants, as they are called, we must have the cutting or seedling Briar, Manetti, or Grefferie. They are all prepared and budded in a similar way, and so one common description may be made to do duty for the lot. A Briar cutting is simply a branch or slip, cut from a Briar or Dog Rose, and inserted in the ground—when rooted, it is to be budded below the collar. The collar is where all the branches start from. The bud being inserted here, in the root as a matter of fact, and the collar being cut clean away at the proper time, it will be seen at once that suckers are, to a great extent, done away with; but unfortunately a cutting can only be made of a piece of a branch, which, like all other branches, is covered with buds. Where there is a leaf, there is a bud. These buds require to be cut out when the cuttings are being first prepared, and no matter how carefully this may be done, there are sure to be a great many buds or parts of buds left, and these will in time grow up into suckers. Fig. 45 shows a cutting, which should be about 8 or 9 inches long, and made of good firm wood; all the buds, except the two nearest the top, should be cut clean out as shown at *c*, the leaves being retained on those that are left. The base of the cutting should be cut off close up to a bud, as in the illustration. The cuttings are to be planted as firmly and as deeply as possible, just allowing the leaves to be above the surface of the ground. The longer the leaves are retained on the cuttings after they are planted the better, as the leaves assist the cuttings to form callus at their bases, and once this is formed, which generally happens in a few weeks, the cuttings are pretty certain to root and become plants. Cuttings should be made and put in while the sap is in motion; if deferred until after that time, the number of failures will be numerous in all probability. September is perhaps the most suitable month, taking an average, but if the sun should shine very brightly, or the weather be very dry after the cuttings are inserted, then it will be advisable to shade them by means of branches cut and laid lightly over them, or by some other means. As a rule Briar cuttings

require none of these attentions in ordinary seasons, and may generally be left to take care of themselves.

The stock, in my opinion, which is bound to carry all before it, is the seedling Briar. This consists of a plant grown from the seed of the Dog Rose or wild Briar, which grows so freely in the hedges. At the time of budding, indeed from the first, it is a perfect plant, not a branch of one, torn from the hedges with no root to speak of, as a standard is; nor yet a part of a branch, with a tuft of roots at the end of it, and a whole lot of dormant eyes or suckers concealed about the underground stem, ready to start up at intervals, as a cutting is. The seedling Briar, being budded below the collar, like the cutting, and having the collar cut away afterwards, is, in that respect, quite equal to the cutting. But it beats the cutting in the fact that there are no dormant buds on the roots to spring up as suckers, though there is no doubt that some suckers do come up now and again even with this stock. But its great advantage seems to be in the fact of its great vitality and strength of constitution, and this, in my opinion, arises from its being grown from seed. Growth from seed is the true natural process of increase, and I believe this is the source that we must look to for our future stocks.

Mr. Edward Mawley, the Secretary of the National Rose Society, and also, I believe, an ardent lover and cultivator of the Rose, in his article in the "Rosarian's Year Book" for this year, gives what is to me a most interesting table, showing the comparative state of a quantity of Roses planted in his garden, and budded on different stocks as an experiment, and as his testimony favours my argument I have no hesitation in copying it here. I hope I should be honest enough to do so, even if it were against me, but in that case I should probably, acting up to my convictions, try to upset it.

He says that he planted thirty-four varieties, twelve plants of each variety, four plants of each on three different stocks—Manetti, cutting, and seedling Briar, and in the table, which I give herewith, he places each four in three divisions, according to the strength and growth of the plants. It will be seen that the plants on the seedling Briar take the lead in twenty-seven cases, against the cuttings five, and the Manettis two.

	First.	Second.	Third.
Manettis	2	18	14
Cuttings	5	13	16
Seedlings	27	3	4

The plants, at the time this table was drawn up, had been planted eighteen months. I am not much of a prophet, but I dare prophesy that when they have been planted twice as long, the seedlings will be still going ahead, and the Manettis still going

Fig. 45.—Showing at *c* how the buds should be taken out.

behind. This little table represents a very capital experiment, and one that conveys a lot of information, and if Mr. Mawley carries out his experiments in all cases as he has done here, he may be sure that when he speaks, Rose growers who are in earnest will be only too glad to listen to what he has got to say.

To return for a moment to the seedling Briar—the great drawback at present is the price. Roses on this stock appear to be dear. I say appear to be so at first sight, but if we look into the matter we shall not find it so. If we buy 100 plants on the Manetti for 50s., and lose a quarter of them the ensuing winter, no uncommon occurrence hereabouts, we shall have to buy twenty-five more at 12s. 6d. in the spring to fill up the gaps; and if we keep

on losing twenty-five more each following season, we shall still have to keep on forking out 12s. 6d. each year. One hundred Roses on the seedling Briar, all of which will most probably live and flourish for years—yes, twice as many years as those on the Manetti, will be much cheaper in the long run, even if we have to pay 60s., or even 70s., for them. For my own part I cannot see why seedling Briar Roses should be any dearer than those on the Manetti, and it is my firm opinion that they will soon be to be had at the same money.

The Manetti may answer on light dry soils where the Briar fails, but for real business give me the Briar. The Manetti makes grand plants the first year, even finer than the Briar in some cases, and I am half inclined to think that this is the reason why so many nurserymen grow it.—D. GILMOUR, JUN.

(To be continued.)

SALADS AND SALAD CULTURE.

[A paper read before the Liverpool Horticultural Society by Mr. F. Harrison, The Gardens, Knowsley Hall, Prescot.]

AMONG the many duties of a gentleman's gardener that of providing a regular supply of salading for his employer's table is one of the most important, few things being more freely criticised or more keenly relished than the salad. At some tables the salad is of as much importance as the dessert; and as with a dessert so with a salad, it is required to be not only good to eat, but pleasant to look upon. Of course tastes differ occasionally as to what is good, and opinions vary as to what looks best, but that only goes to prove the truth of the axiom that appearances go for much. Before going further, I beg to remark that it will be impossible for me, within the limits of this paper, to enter into all the details of the various branches and interests connected with the subject. I shall therefore confine myself to the routine of practice that applies to a gentleman's garden chiefly. The first thing I would like to impress upon the mind of the cultivator of salading is, that what may be termed the essential qualities of the produce can only be fully developed by the careful and timely observance of a few leading rules and principles of cultivation, and that mere cultural details are an elastic and variable quantity, which may be made to fit in with the circumstances of time and place; and, secondly, that whatever is destined for the salad bowl should be grown well, and as quickly as is consistent with the nature of the plant and the season of the year, and this should be accomplished by what I will call "fair means." I would deprecate the use of sewage under any circumstances, and even ordinary liquid manure should be eschewed in the finishing stages of growth; in fact I would insist upon the cultivation being throughout of a cleanly and wholesome character, and this it may be if the land is kept in good heart, deeply and well worked, and the crop is allowed sufficient room for full development. These are what I will call "fair means," and by them we can surely and unfailingly raise salading of the necessary succulent quality. Everything, then, should be fresh, clean, crisp, juicy, and "nutty;" nothing of a woody, woolly, or fibry character is admissible. It is well, too, to provide as much variety as means will afford, and though some portion of green is generally liked, we must never be short of well-blanching foliage. A Frenchman, whose salads used to be much admired and praised, once observed to me that in England a salad is often spoiled by too much vinegar and too much water. Well, I suppose the gardener has seldom anything to do with the vinegar, but he may be responsible for some of the water if his salading happens to require much washing, a condition which I know full well is not easily avoided in a climate where clouds of dust and showers of rain come alternately. But that does not matter; what we have to bear in mind is, that the less washing is requisite, the better. This remark, I need hardly say, applies to such things as grow above ground only, and not to underground parts. And now, having said so much upon leading rules and principles and essential qualities, I will refer to the practical or cultural part of the subject.

LETTUCES.

First as to Lettuces. It has been said, and with some truth, that the heart and soul of a salad is a Lettuce, for it would be difficult to find a perfect substitute for a good Lettuce, Cabbage or Cos. Each has its patrons and admirers, and in each class there are numerous varieties, some being most suitable for sowing at one season of the year, and some for another. In early spring it is desirable to sow such sorts as turn in quickly, as at that time there is generally more or less of a scarcity of salading, and at the same time a large demand for it. The Early Paris Market is one of the best for the first sowing, and if put in early in February, and brought on for a while in gentle heat, and finished in a cold frame, is most useful. Another charming little Lettuce is Perfect Gem.

It also grows quickly, turns in rapidly, occupies but little space, and it has the further good quality of hearting up so closely as to insure blanching. Other good sorts of Cabbage Lettuce are—All the Year Round, Brown Genoa, Brown Dutch, Hammersmith Hardy Green, &c. The two last-named are most useful for sowing for late autumn and winter use, as they are not only hardy, but their size and habit of growth render them well adapted for cultivation under handlights, a position in which they will survive the hardest winter, provided they are strong to begin with and the glasses are kept close. Among the best of the Cos Lettuces may be named Paris White, which I fancy is the parent of, or the stock from which has been selected numerous "Superb Whites" with the vendor's name prefixed. Be this as it may, it is an excellent Lettuce. Sugarloaf, Brown Cos, Black-seeded Bath, and Hicks' Hardy White are also good and reliable sorts, and of course there are many others. Summer Lettuces require good rich soil, and I prefer sowing them where they are to stand when that can be done. Circumstances, however, will not always admit of this, and then we adopt the next best plan of sowing thinly in a bed from which they can be transplanted while yet small, care being taken to shade and water them according to the requirements of the time. When the young plants are well established and growing freely, a mulching of old Mushroom bed, or something similar, laid on soon after a soaking of water, is beneficial in several ways, and will help to develop those fat-looking Lettuces that are admired and appreciated by nearly everybody. If liquid manure is used, it should be applied in a clear state, and only in the earlier stages of growth. There should be no suspicion of anything of the kind about the Lettuces when they come into use. Blanching must not be forgotten when the time for it arrives, and it may be accomplished in a variety of ways. Tying up with a piece of matting answers very well, and is generally sufficient, but if a special pride is taken in this part of the work, a clean flower pot may be turned upside down over each Lettuce—a few at a time, according to the demand—care being taken not to leave them on too long, or the Lettuces will very soon either decay or "bolt." It takes about five or six days in the summer time, and later in the season a little longer, to blanch a green Lettuce of some of the Cos sorts, but such as have the habit of folding closely over often require but little doing to. Seed should be sown frequently during the spring and summer, and in July three or four sowings should be made, as from these will come the autumn supply, while sowings for winter use may be made during August and the early part of September, perhaps a little later in some localities.

ENDIVE.

Endive is indispensable for autumn and winter use, and about three sorts are as many as need be grown. The Moss-curl is a good sort to sow about the middle of June for early use, to be followed by the Hardy Green-curl and the Round-leaved Batavian about the first week in July and again about the end of that month. These three sowings will cover the period when Endive is most in request, but a small sowing a week or two earlier, and one rather later than the times named, may be made if circumstances demand it. Very early sown plants are, however, given to run to seed prematurely, while very late ones do not develop fully before the cold weather puts a stop to growth. The cultural details for Lettuces will apply equally well to Endive with a little variation. Blanching is most easily effected by placing a piece of clean board over as many plants as are likely to be required in five or six days, pushing it on from time to time when a cutting is made, so as to keep up a constant succession of well-blanching Endive. Tying and inverted flower pots may be resorted to where those methods of blanching are preferred. Some people lift a portion of the later sowing of this crop before hard weather sets in and plant it out in a cold frame or house along with some of the later sown Lettuces, but I much prefer growing a batch of each in the frame where they are to remain, as these seem less liable to decay during winter than such as have been lifted when fully developed.

(To be continued.)

SIGNS OF SPRING.

THE protracted winter has been remarkable for severe and long continued frosts, keeping hardy plants effectually in check. Scarcely any plants are in flower yet out of doors save Winter Aconites and Snowdrops, and these are always welcome. The only plant which has really never ceased flowering throughout the winter is Viola Brilliant, in colour a golden yellow, with dark blotch in centre. It is worthy of note that the young plants of this particular variety, inserted as cuttings last July, had bloom buds upon them when planted early in November in their permanent quarters for this year's flowering. Many of these buds expanded after this time, and others were ready to open when the snow came and hid them, but when the snow departed the buds still continued to open in spite of all weathers, and indeed three blooms had

expanded with the snowy mantle above them. I am induced to mention these particulars from the fact that it is the only *Viola* I possess which has made any attempt in this direction, and coupling this with the fact that the plants are only cuttings of last summer, leads me to believe that it may prove a valuable variety for early spring bedding. I shall, however, watch its progress among the rest, and will give the result later on.

If we, however, desire a genuine bit of golden colour in the dawn of spring, we have it supplied in the Great Pilewort (*Picaria grandiflora*), a plant as yet far from common, and deserving extensive cultivation. In a sheltered position its lovely golden blossoms, which are fully 2 inches across, are now most cheering, and it is certainly a first-class plant. It is at home in a sunny moist position. It can, however, be grown on a warm and sunny border, but it attains to much greater size in the first named position. It may also be grown as a sub-aquatic; indeed, if grown as such it is most conspicuous in the early months of the year. It was so grown some years ago at Tooting, and it is a rare occurrence to meet it in grander form than it was there. Thus grown the foliage attains almost the size of our native Marsh Marigold when found in a marshy piece of ground. Its flowers are bright golden, erect, about a foot high, and borne in profusion for some considerable time, expanding best with sunshine. It is a native of southern Europe, and, in short, a most desirable spring plant. It is readily increased by seeds or by division when the plant is at rest.

Clionodoxa Lucillæ.—How truly this has been called the "Glory of the Snow!" The few days of warm sunshine before the snow enticed a few of its lovely blue and white flowers above ground. The cultural requirements of the plant are very simple indeed. It succeeds well in any light sandy loam well drained; and planted at 3 inches deep and allowed to remain undisturbed, it soon forms a lovely carpet. Once planted it gives no trouble, and may be allowed to seed at will. When dormant a top-dressing of good soil and decayed manure in equal parts will greatly benefit the bulbs in the future.

Bulbocodium vernum.—Regarding this plant at first sight, even the well-informed might be pardoned for mistaking it for a *Colechicum* but for the fact that these latter are strictly autumn bloomers. The *Bulbocodium* pushes itself through the ground very early in the month of March, sometimes even earlier than this if the weather has been exceptionally mild. In keeping with the genus *Colechicum*, it pushes through the surface leafless, and consequently is not so much looked for as the majority of plants which send forth leaves first and then flowers. It is quite distinct from all other spring bulbous plants in point of colour, this being of a bright rosy purple and very attractive. It grows only about 6 inches high—that is, the flower buds, the leaf growth assuming similar proportions to some of the *Colechicums* when the flowers are past, and is most charmingly adapted for associating with such things as Snowdrops, Winter Aconites, and the like. It is not often seen in good condition, and is yet a very old inhabitant of our garden, and it well deserves encouragement. It is easily grown in any ordinary soil, and should be planted towards the end of summer, so that the bulbs may become fairly established.

Saxifraga Burseriana.—This is another gem of early spring suited best for the rockery, or may be grown in pots. It is of diminutive growth, and is composed of numerous rosettes of spiny leaves of a silvery grey colour; it flowers during February and March, and is one of the sweetest of all alpine, and certainly one of the most lovely of the extensive genus to which it belongs. The flowers are pure white when expanded, and of considerable size as compared with the plant generally. Prior to expansion the buds are a bright red, the two forming a striking contrast. A lovely pan of this charming plant was exhibited at the last meeting of the Royal Horticultural Society, and which came from the Society's Gardens at Chiswick, and which clearly demonstrated what can be done with these gems of spring if a little attention be afforded them. It grows about 3 inches high, and may be increased by division and cutting.—J. H. E.

WATERTIGHT ASHPITS.

THE preservation of fire bars by hot versus cold water was under discussion at first, and if there are any "fogs floating about" they have been created by Mr. J. Riddell. From his own showing the bars are not preserved by the aid of water beneath them, but the contrary. This he demonstrated in his first article, and again on page 86. He appears most anxious that this discussion should close; is it because "Wilson's Inorganic Chemistry" fails to assist him much further in the theory he has advanced?

Before dissecting the last letter I will examine his vapour theory, and give him a chance, if he can, of demonstrating practically whether it really possesses advantages worth the labour, trouble, and first expense. It appears that this vapour theory has been partly if not wholly put into practice by Mr. Riddell, for his ashpits and boilers have been erected for the purpose. He could have closed this matter long since if he had shown us the advantages of his vapour method of heating in pounds, shillings, and pence. If the cost for a year with vapour, and the cost for a year without, as well as the external temperatures for the two years had been given, further discussion would have been out of the question if there had been a good balance on the side of the vapour theory.

It is well known that oxygen in relation to combustion is most important, and because vapour beneath the furnace supplies a double quantity of this gas, the advocates would have us believe that the

economy of fuel is great. The formation of such ideas are more imaginary than real, because combustion by the aid of vapour (steam) and atmospheric air are essentially the same; they differ only in degree, and not in kind. By burning fuel in atmospheric air, or by its aid, combustion would be slower, the light and heat less intense, but the same quantity of heat in both cases would be evolved. The fuel by the aid of vapour, or shall I say the extra supply of oxygen, would be burned more rapidly and produce a higher temperature than when burned by air alone, but in the end the results would be exactly the same; for example, a given quantity of coal or coke with a given quantity of oxygen, say, in a pure state, would not heat more water or melt more ice than the same quantity of fuel burned by the aid of oxygen diluted the same as it occurs in the atmosphere. Do we want in gardens a method of combustion that will burn the fuel rapidly without a greater quantity of heat as the result? An extra quantity of oxygen applied in the form of steam might prove advantageous in raising the heat quickly in case of an emergency, but beyond that no advantage worth the bother would be obtained. We do not want the pipes in our houses made hot in a hurry except after a breakdown, or any unforeseen circumstance. We generally start the fire slowly, so that the temperature will be gradually raised, and by evening the desired temperature has been attained. All that is wanted after this is a steady fire to maintain the heat in our houses. There are exceptional cases during very severe weather, when the fires must be pushed on more briskly, when the vapour theory might prove beneficial, but these cases are the exception and not the rule. With sufficient boiler power and plenty of piping, when once the desired heat has been attained, it is only necessary to maintain it, and in most cases this can be done on slow combustion principles. On this principle only can an economy of fuel be effected, and not by any method that results in the rapid consumption of the fuel. This is what is achieved by supplying an extra quantity of oxygen above that contained in the atmosphere. Very frequently atmospheric air insures too rapid combustion, and we are compelled to largely check its entrance to the furnace, and in such cases why is vapour needed to add to the evil?

I see "Albion" differs from me, as he does not believe the same advantages he now enjoys would have resulted from the admission of more air to his furnace. Of course, he gives the whole credit to the application of water beneath the fire bars. He first took a step in the right direction when he used coke and anthracite together for fuel. This kept the fire open, and allowed free entrance to the supply of oxygen necessary for combustion. This he has obtained by vapour and the atmospheric air admitted. The same results would have followed the admission of more air. His fire will be slightly brighter by his present method, and the fuel may be consumed more rapidly, but the heat evolved under both circumstances would have been the same. If "Albion" doubts this he can turn to Mr. Riddell's favourite author ("Wilson's Inorganic Chemistry," page 173, art. 451), and he will there see it explained.

Mr. Riddell has tried somewhat to anticipate me, for I have nowhere said that red-hot iron does not decompose water. I was careful, on page 46, to say heated piece of metal, not red-hot. As it appears to be necessary to have iron red-hot before it decomposes water, it would be indeed hair-splitting to try and define the quantity of water decomposed by the bars beneath our furnace. Iron does not possess this power at ordinary temperatures. What are we to understand by "ordinary temperatures?" The fire bars are very frequently at what I should term "ordinary" temperatures, for I have never yet seen them anything approaching "red-hot." This condition may be approached near the top on which the heated fuel lies, but no great distance down the bar. If thin bars are used, and they are kept perfectly clean, they will never approach a red-hot condition.

Mr. Burton's professed object is one of progress, and yet he withholds the information asked for that would have placed us in a position to judge the test to which his fire bars have been exposed. This information might have strengthened or weakened his position. If the former, I should have been inclined to believe that the vapour did assist in the preservation of the bars, and that the very small amount of oxidation to which they were subjected would only have been of secondary importance. I am certain that the bars would be a very long time rusting away to be rendered useless by vapour beneath them. Under the circumstances, then, I can only conclude that Mr. Burton's position would have been weakened by supplying the information sought.

Nearly all the points raised by Mr. Simpson on page 108 have been previously discussed, and before he can properly judge my position in this matter it is necessary to see the previous articles that have been written on both sides. The advocates of watertight ashpits for the preservation of the bars have not advanced any very strong proof of the advantages that result by their method. If the heat in furnaces for the manufacture of gas is much more intense than is the case in our furnaces, which I do not dispute, this only weakens instead of strengthening their case, for it shows that there is the less need for practising any such system. Mr. Simpson prefers thick bars; I shall in future only employ thin ones for reasons previously stated. The best system I have yet seen connected with a steam boiler going day and night is a process that keeps the bars constantly moving, by which the clinkers are passed to the end of the fire and deposited in a box, and then by opening a door that divides the clinker box from the ashpit they can be raked out with the ashes. The bars in use are considerably lighter than those I gave in a previous article. With thin bars, a clean ashpit, and the bars kept perfectly free from clinkers, I do not think we should have to complain about their lasting properties.

With regard to water beneath tubular bars, I condemn very strongly any such system. I see "Thinker" unknowingly, or the reverse, conveyed the impression that I would advise a flow of cold water beneath them to keep them cool. I have not done so, and as far as I can see I have not written a sentence that will bear such a construction. What good are tubular bars to a boiler to assist its power if an attempt is made to cool them? Tubular bars are generally wider apart than solid bars, and therefore I consider combustion would be increased rather than otherwise by the admission of a greater volume of air.

More perfect combustion by the aid of air above the fuel can be insured than when it is only admitted through the furnace bars. I referred to this some time ago, but I see the subject is again brought up. I am strongly of opinion that combustion with the least possible waste can only be insured by the admission of air above as well as through the bars. By admitting air only from the base there is a large escape of carbonic oxide, which, with the addition of atmospheric air from above, will convert it into carbonic acid, in which form it escapes. But different boilers require widely different management, for it is clear that only about one-half of the oxygen of the air admitted really enters into the process of combustion, which no doubt arises from the difficulty of mixing the gases during their passage through the boiler. The longer these gases are in contact and agitated in passing through the various obstructions of the furnace, the more likely are they to abstract the oxygen of the air.

Much more might be written on the combustion of fuel, for I am convinced that there is greater waste in the passage of gases up the chimney unutilised than is the case in the destruction of bars by burning or twisting. But I have already trespassed too far on your valuable space on this subject, and therefore have finished for the present, but at some future time hope to revert again to the combustion of fuel. I am glad to learn that the discussion has been instructive to others besides myself, as letters I have received testify.—WM. BARDNEY.

[The publication of this article has been unavoidably delayed.]

ROSE SHOWS IN 1887.

June 23rd, * Ryde.	July 7th, * Bath, * Farnham, * Farn-
" 28th, * Bagshot.	ingham, * Hitchin, * Ips-
" 29th, * Croydon and Richmond	wich, and * Winchester.
" 30th, * Canterbury, * Moreton-	" 8th, * Maidstone.
in-Marsh, and * Nor-	" 12th, * Diss and Oxford.
wich.	" 13th, * Edinburgh (N.R.S.).
July 1st, * Reigate.	" 14th, Birmingham and Harles-
" 2nd, Crystal Palace, and	ton.
* Eltham.	" 15th, * Helensburgh and Hull.
" 5th, * Kensington (N.R.S.).	" 16th, * New Brighton.
" 6th, * Ealing, Regent's Park	" 20th, * Birkenhead.
(R.B.S.), * Sutton, and	" 22nd, * Ulverstone.
* Tunbridge Wells.	

Those exhibitions which are held by the National Rose Society or by Societies affiliated with it are distinguished by an asterisk. The only two-days Rose Shows in the above list are those at Birmingham and Hull. In each of these cases the date of the first day's exhibition only is given.—EDWARD MAWLEY, *Rosebank, Berkhamsted, Herts.*

THE LITERATURE OF GARDENING.

AN exhaustive and interesting paper on "The Literature of Gardening," was read by Mr. William Paul, F.L.S., before the Royal Society of Literature, Delahay Street, St. James' Park, on Wednesday, the 23rd inst. The President, Sir Patrick Colquhoun, Q.C., was in the chair, and there was a good attendance of members and visitors. We can only briefly note the principal points in Mr. Paul's lecture this week, but we hope to refer to it more at length in another issue, and we understand that it will be published by the Society *in extenso*.

After dealing very fully with the numerous scriptural references to gardens, Mr. Paul reviewed the progress of gardening amongst the ancients up to the time of the Greeks and Romans. Some quotations from the works of the principal writers in the latter period were given. On the revival of learning the Italians and Dutch were first in the field, followed by the French, English, and other nations. The herbalists seem to have been in the van, the six books of Dioscorides, written in the time of the Emperor Nero, having held the sway down to the opening of the seventeenth century. In the writings on gardening proper much superstition was mixed up with practical gardening down to the time of Bacon. At the end of the seventeenth century a new era in gardening may be said to have been inaugurated. From the dawn of the present century the progress has been most rapid, not only in England but in all civilised countries, and great indeed has been our gain by the uprising of the gardeners' improved races of vegetables, fruits, and flowers.

On the conclusion of the paper, the President, after complimenting the reader upon the elaboration of its contents, discussed at some length the ancient allusions to gardens more or less famous, particularly those of Alcinous and of Nebuchadnezzar. Mr. E. Gilbert Highton, the Secretary, alluded to and described the curious floating gardens of Mexico, and likewise the hanging gardens of Babylon before referred to, and then proceeded to enlarge upon and discuss the hints thrown out by the reader in reference to the famous controversy between the artistic and natural styles of landscape gardening at the beginning of the last century—quoting the exquisite description of Eden in Book IV. of the

"Paradise Lost," as showing that Milton took his grand idea from the very handiwork of Nature and her God. Mr. Gilbert Highton took occasion also to echo old Evelyn's complaint of the paucity of gardens in London, and expressed a hope that this paper might sow the seed of future progress in this respect. A vote of thanks to Mr. W. Paul, moved by Mr. J. W. Bone, and seconded by the Treasurer, Mr. J. Haynes terminated the proceedings.



ORCHIDS AT WYNCOTE.

IN the gardens of Mrs. Neumann, Wyncote, Allerton, a narrow house, formerly a passage to a stokehole, has been strikingly beautiful with the delicate flowers of several Orchids. One of the most imposing plants was *Dendrobium Wardianum* Lowi with six pseudo-bulbs, varying from 18 inches to 3 feet, profusely flowered, a very fine form of this lovely *Dendrobium*. A background to this plant was a large *Gleichenia*. Not less conspicuous was a fine plant of *Dendrobium Ainsworthi* with 150 flowers in a basket, and several plants of *D. crassinode*, some of good size, and all profusely flowered. The old *D. nobile* was also noteworthy, and no less charming than many of the newer, and, at the present time, more popular forms. *D. crepidatum roseum* with its delicate white sepals and petals tinged with rose was well grown and bloomed. The same may be said of the dwarf *D. albo-sanguineum*. Although less striking in colour than many forms, it is nevertheless worth a place in every collection however limited. Several forms of the free-flowering *Odontoglossum Rossi majus* were suspended amongst other plants. Some nine or ten plants of *Cattleya Trianae* with their large flowers added to the charming effect in this little house. Perhaps most attractive of all was *Cattleya amethystoglossa*, a remarkably fine variety, having two spikes of large flowers, one carrying nine and the other ten. Very few, if any, Orchids surpass this in beauty—that is, fine varieties with light rose sepals and petals spotted with rich purple and a lip of the same colour. There are many varieties of this plant, but the one Mr. Mease possesses is the finest form I have yet had the pleasure of seeing. There were several other Orchids in this little house associated with Ferns and a few bright coloured Coleuses.

In another house the distinct *Dendrobium Brymerianum* was displaying three of its deep yellow blooms with their conspicuous golden fringe, which hangs majestically for 2 inches below the lip. *Cymbidium eburneum*, with its pure white fragrant flowers, was in full beauty. *D. Devonianum* in the stove would have in a few days several hundreds of its delicate flowers expanded, some of the pseudo-bulbs being nearly 4 feet in length, and flowering over fully three parts of their length, while *D. fimbriatum oculatum* was showing no less than 200 spikes. The *Phalænopses*, as usual at this season of the year, were remarkably fine. Fancy a beautiful drooping raceme of rosy pink flowers, 120 in number, as was borne by one plant of *P. Schilleriana*. Three or four other plants were in flower, but with a less number of blooms. *P. amabilis* had one fine spike, while *P. Stuartiana*, several plants in bloom, varying in shade of colour, were producing their delicately spotted flowers. One spike was carrying fifty blooms.

ORCHIDS AT ELM HALL, WAVERTREE.

There are many Orchids in the gardens over which Mr. A. R. Cox presides, but they are mostly of small size, small imported plants only appear to have been purchased. Very noticeable amongst a collection of small plants was a very fine specimen of *Phalænopsis Schilleriana* with grand healthy foliage, bearing a large spike of fine flowers. A young plant was showing on the flower stem. Young ones raised by this means generally do well and possess greater vigour even than the present. The best and most floriferous plant at Wyncote was raised from the flower stem. Several forms of *Odontoglossum Rossi majus* were in flower, growing in pots, shallow pans, and on blocks. Several forms of *Cattleya Trianae* were in bloom, and noticeable amongst them was one of the dark Popayan varieties bearing six fine flowers. A very fine plant of a *Cattleya* named *intermedia*, but which, I think, is a variety of *Harrisonia*, had seventeen of its delicate rose-coloured flowers with a slight tinge of yellow in the lips. There appears to be some confusion between *C. Harrisonia* and *C. intermedia* in gardens, for I noticed in the Harvey collection a plant (428 according to the catalogue) bearing three flowers of the same colour named the latter. Perhaps Mr. Cox will kindly send you a flower, so that you could determine really which it is. The flowers are totally distinct from the form of *C. intermedia* that I possess, and of the various forms that I have seen in several other gardens. The plant that Mr. Cox grows is to my mind much superior even to the best forms of *intermedia* that I have seen. The flowers possess more of that delicate pale rose-lilac tinge characteristic of good forms of *C. Loddigesii* than is to be found in *C. intermedia*. A very fine plant of *Dendrobium nobile* was in flower, carrying over 300 of its delicate, useful, and showy blooms. It may be noted for the benefit of others similarly situated that Mr. Cox was very much troubled with yellow thrips amongst his Orchids until he commenced a year or two ago a general and judicious use of the syringe. This simple

method has entirely eradicated these troublesome little pests, while the plants are cleaner and healthier by this method of culture.—W. R.

MR. SMEE'S ORCHIDS.

MR. SMEE has an excellent display of Orchids at The Grange, Hackbridge. The collection is noteworthy by the number of plants rather than the size of individual specimens, and they are in admirable condition. The house in which the majority are arranged is very unconventional and highly attractive. It is a span-roof, about 100 feet long, the short southern side of the roof boarded, the northern side glazed. Under the former is a forest of Ferns, the opposite side containing Orchids and various other plants. The glazed roof is gay with *Tropæolum* Ball of Fire trained at intervals; and several plants of *Thyracanthus* rutilans in pots stood in baskets suspended from the roof with their pendant racemes of scarlet flowers mingling with the Fern fronds are highly effective. Among the Orchids are several fine forms of *Cattleya Trianae*, the colours having deepened considerably from growths made in the open air. *Odontoglossum Rossi majus* is represented by distinct and good forms, and amongst some twenty others of the genus in flower *O. retusum* is seen, and the charming white *O. Oerstedti majus* that far exceeds the type and is worthy of extended cultivation. A great number of others must be passed in this picturesque structure. In a smaller house *Phalenopsis* are flowering freely, the plants having improved considerably since being suspended over a bed of *Selaginellas* and other trailing plants, which, besides being of service as indicated, forms an attractive feature. Prominent in this house are two plants of *Cyrtopodium Saint-legerianum*, the one which was certificated last year bearing eighty flowers on a robust branching stem, some of the round stout pseudobulbs being 3 feet high. The companion plant is nearly as large and has much deeper-coloured flowers. *Dendrobium macrophyllum* is very fine, as are many others that cannot be enumerated. Mr. G. Cummins assiduously studies the requirements of the plants, and scarcely one can be seen "out of condition" in the mixed collection.

SERVING THE KITCHEN.

THE above phrase is very common in a gentleman's garden; but common as it is, it is not the least important among many duties. It is often considered of minor importance, and frequently the duty is performed by the garden boy for economy's sake instead of by a more experienced person; and even when some persons of matured age are entrusted to perform the duty I am inclined to think that it is not always executed in the manner which its importance requires. After trouble has been taken to prepare the ground, sow or plant, as the case may be, the several vegetables required for use in the kitchen, and growing them to the best possible condition. I think sometimes a little more discretion should be used in the selection of vegetables at the proper time, and to utilise them in the most economical manner. How often vegetables are wasted when a little timely thought may prevent it! and at times when those have been used indiscriminately are wanted they are not forthcoming. The person who performs the duty of serving the kitchen, after receiving his order, should make an inspection of what stock is already in the scullery. Some vegetables are ordered day after day without regarding what they have already, and consequently much is often spoiled and consigned to the pig tub. In the selection of the different vegetables a certain amount of care and thought is indispensable, especially with such vegetables as Peas, Beans, Cauliflowers, and all kinds of vegetables that are eaten in a young state. I have seen men, who might be expected to know better, pull young and old Peas together, and take them to the kitchen, where if they were cooked and sent to the employer's table as sent in (and I am afraid they often are) they would not make an agreeable dish, for some of the Peas would be hard and dry, while some would be almost smashed, and the chef be blamed for cooking them badly. Peas and Broad Beans should be gathered as nearly as possible of the same age, and while they are in a green tender state, and if any become old they can be used in other ways. The same applies to dwarf and runner Beans. If allowed to become old and stringy they will defy the best cooks to make them tender. That some good vegetables are spoiled in cooking I admit, but all vegetables which are used in a young state should be sent in young and fresh.

Cauliflowers and Broccoli must not be left till fully opened before sending them to table, and Cabbages are best before the hearts get too hard. Carrots for a dish should be young, and Asparagus must be cut before it is too long. Seakale soon grows stringy and strong in flavour, if not cut at about 4 to 6 inches long, and many good vegetables are spoiled through not being used at the proper time. There is a vast difference between well selected vegetables properly cooked and those indifferently selected. There are few tables which a good dish of young Peas is not appreciated, but if given badly selected with a few dry ones among them the whole dish is spoiled. As the finishing touch of the painter's brush often decides the fate of a picture, so does the selection of vegetables for the table at the proper time decide their

good qualities, therefore I feel certain that a little more discretion is necessary in the matter. I am quite aware that in the majority of gardens labour is so limited that to get through the work at the busy time of the season in a satisfactory manner is a strain on the most energetic, and serving the kitchen is looked upon as a secondary consideration by many, but whether this is a wise course to adopt I must leave my readers to determine.—W. SIMPSON, *Knowsley*.

NOTES FROM MY GARDEN IN 1886.

No. 2.—ROSES.

THE same reason that has led me to take *Gladiolus* as the first subject for my annual papers induces me to place *Roses* second, for in one sense this is the time of *Roses*. All *Rose-growers* are thinking upon the important subject of pruning, and when any two of them meet you may be sure that the first question will be, "Have you pruned yet?" When the answer is in the affirmative the expression will be, "I am sorry for you." We have had lately as severe frosts as at any time during the winter, but they are not so hurtful. The nights are shorter, the sun has more power, so that it does not do so much damage as when the frosts are continuous and the days dark and dreary.

The effects of the past winter vary very much on localities and soils; but of this I have not now to write, but only of its effects on my own small collection. Here we have not had any lower temperature during the winter than 16° of frost. We had also a nice fall of snow of about 3 inches, which protected the plants during its greatest severity, and as a consequence I do not find any amount of losses amongst my plants. They now look vigorous and healthy, while I believe the *Teas* have stood it just as well as the *Hybrid Perpetuals*; in fact, I believe that each year is showing us that they are equally hardy. There are amongst both classes some that are equally delicate, several H.P.'s, of which the record is best on maidens, implying that after the first year they are not to be depended on. They are too weakly to make fresh strong shoots, and consequently they dwindle away. So with *Teas*. I think, however, that those of late years have few delicate varieties amongst them; at any rate, I cannot find more blanks amongst my *Teas*, not even in those planted last autumn, than amongst the H.P.'s, and as I have said there are but few in either.

I mulched heavily in the autumn, mainly with pig manure, and raked all the long stuff off in the spring, forking the rest lightly in, so as not to disturb the roots of the *Roses*. This was done before pruning, for as my beds are narrow there is no necessity for stepping on them to perform that operation. They were pruned about the middle of March, and pruned hard. A noticeable change has taken place in pruning of late years. I recollect when the strong shoots, which we look for now as "the hope of the flock," were regarded as "robbers," and were ruthlessly cut out; but nowadays it is the old wood we get rid of, and trust to these vigorous young shoots, which were formerly despised; hence the idea of having large bushes of H.P. has to be abandoned, and if we wish for these we must look to our summer *Roses* which may grow at their own sweet will. My *Roses* broke well; we had none of those May frosts, at least to any extent; the thermometer at 4 feet from the ground never went below freezing point, and on the night of the 1st of April, which was generally so severe, the thermometer stood at 37°, and during the time when the cold wave usually passes over us, from the 15th to the 22nd, it was never below 37°. The result of this was an excellent bloom, although I think a shorter one in duration than usual. We had very hot weather in July, but while the exhibition *Rose* season, if I may so call it, was short, I never recollect a more favourable time in my garden for autumnal *Roses*, while the *Teas* were an unceasing delight. Day after day we could gather bouquets of these lovely flowers, and up to the very approach of winter they were affording delight. There are some varieties which from their excessive fullness are apt to succumb to wet, and the buds do not open well, such for instance as *Jean Dueher*; the more pointed and less full flowers are those which afford the greatest satisfaction at the later period.

The behaviour of certain *Roses* is remarkable, and I am sure the more they are studied the more remarkable their mode of conduct will strike one. Why in one season does the same *Rose* all over the country come so well as to give its character to the year? Why is it that two *Roses* so alike as *Alfred Colomb* and *Marie Baumann*, so come that in one year you will rarely see a good bloom, and in the following year hardly an indifferent one? Why is it, again, that during the past year a *Rose* which many considered only a summer *Rose*—*Madame Gabriel Luizet*—should have bloomed most profusely in the autumn with me? In fact, I gathered from it as fine blooms in August as I did in July. But as I do not grow for exhibition probably in both cases an ardent exhibitor would have pooh-poohed them.

I have not much to say on absolutely new *Roses*, and have to wait for another season before pronouncing on such varieties as *Clara Cochet*, *Victor Hugo*, *Duke of Marlborough*, *Edouard Hervé*, *Général Appert*, *Ferdinand Chaffolte* amongst the *Hybrid Perpetuals*, and *Comtesse de Frigneuse*, *Souvenir de Gabriel Drouet* amongst the *Teas*. They have not done much, as they were not had till late in the summer. I have not had the two American *Roses*, *The Bride* and *American Beauty*. The former I have seen; but it does not so far deserve the title of a white *Rose*,—nothing, for instance, like the white of *Niphetos*.

Following the prevailing fashion, and, indeed, quite in harmony with my own feelings on the subject, I grew a few of the species of *Roses* last year, and Mr. Geo. Paul has kindly enabled me to look forward to

the pleasure of growing some more this summer. *R. berberidifolia* Hardi is exceedingly pretty, but I do not yet know whether it has succumbed to the severe weather we have had. *R. anemoniflora* is one of the rampant-growing so-called climbing Roses and very pretty, and there is no need to sound the praises of those well known Japanese Roses, *rugosa* and *rugosa alba*.

In visiting the rosery of Mr. George Mount, nurseryman, at Canterbury, a little while ago I was struck with a remarkably dark variety of *Reine Marie Henriette*, which he was propagating. It was certainly much richer in colour than any I had seen, and made it the most brilliant climbing Rose we have. His "Mrs. Cooper's strain" of the *Maréchal Niel* was also sustaining its character. My own plant of the *Maréchal* did very well. Although nominally in a pot it has pushed its roots through it into the soil, where it has got something that it likes. It gave me nearly 180 blooms last year, and although not all that we would like as to size and colour, yet they were very beautiful, and amply rewarded me for all trouble. My plant of *Rêve d'Or* is rapidly getting up to its old place, and covers at least 12 or 14 feet of the wall. Longworth Rambler was again most satisfactory, while my plants of *Comtesse de Nadaillac* on the wall gave me some richly coloured blooms. It has not been dislodged from the position it holds in my opinion—viz., as being the most beautiful of all the Teas.

So far I hope that no great injury has been done to my plants. We had snow, which with the mulching has preserved them from frost. I have not yet ventured to prune, but I find on examination that the pith is, as far as I can see, uninjured; and although we have now sharp frosts at night, the nights are shorter, the sun warmer, and much injury is not likely to be done to the old wood. Shall we have a normal season? Let us hope so, and that we may not have to make excuses for the bad behaviour of our pets.—D., Deal.



THE following candidates have recently been elected Fellows of the ROYAL HORTICULTURAL SOCIETY—viz., Albert J. Cansten, C. Fidler, James Henry Millard, Harry Turner, Chas. Cundy, Francis G. Gledstanes, Chas. W. Cousins, and Frederick G. Saunders.

— FELLOWS of the ROYAL HORTICULTURAL SOCIETY are informed that they may obtain volume viii. of the Journal of the above Society, entitled "The Frost Report on the Effects of the Severe Frosts on Vegetation During the Winters of 1879-80 and 1880-1," by the Rev. George Henslow, M.A., F.L.S., F.G.S., free of charge on application to the Secretary, Royal Horticultural Society, South Kensington, S.W.

— WE regret to have to announce the death of GENERAL SAMUEL ALEXEVITCH GREIG, President of the Imperial Horticultural Society, St. Petersburg, a well-known patron of horticulture in Russia, as well as in other lands. General Greig was descended from a Scottish family in Fifeshire. His grandfather was an officer in the British navy, and distinguished himself under Lord Hawke; but in 1764 he resigned his commission and entered the Russian service, where he greatly distinguished himself and became the favourite of the Empress Catherine, defeated the Swedes at Sveaborg, and was Governor of Cronstadt. General Greig's father was also an admiral in the Russian service, and commanded the fleet at the battle of Navarino. He himself began life in the service of the army as a guardsman, but eventually became an admiral and Minister of Finance. Those of the British horticulturists who visited St. Petersburg in 1869 will remember the cordial welcome and the many courtesies they received from General Greig; for though a loyal and devoted son of the land of his birth he never forgot his British descent, and was to the last a member of the English Church at St. Petersburg.

— WE regret to learn that MR. JOHN MCHUTCHEON, who has for many years been connected with the horticultural press, died on Saturday last. Mr. McHutcheon was for a period of upwards of a quarter of a century employed on the editorial staff of the *Gardeners' Chronicle*, and has since occupied a position of responsibility in the conduct of the *Garden*. He was assiduous in the discharge of his duties, and was much respected by his co-workers in horticultural literature. He was a native of Ayrshire, and in his young days he served in some of the best gardens in the south of Scotland, including that of Oxenford Castle. About fifty years ago he came to London, and after spending a short time in nurseries, especially Messrs. Jackson's at Kingston, he went to the Royal

Horticultural Society's Gardens at Chiswick, where he attracted the attention of Dr. Lindley, who selected him as an assistant.

— THE PROPOSED GARDENERS' ORPHAN FUND.—The Provisional Committee that was appointed to consider the mode of creating a fund for the benefit of gardeners' children left without the means of support, met on Friday night last at the *Gardeners' Chronicle* office as a convenient central position, the room being obligingly granted for the purpose by Dr. Masters. Mr. G. Deal ably presided, and brought a mass of valuable information for the guidance of the Committee. A line of action was sketched for printing and submitting to a meeting to be held at South Kensington on April 12th. The President of the Royal Horticultural Society has kindly granted the use of the Council room at Chiswick for the transaction of business, and Chiswick will consequently be the head quarters of the Committee. All communications to be addressed there to Mr. A. F. Barron.

— WAKEFIELD PAXTON SOCIETY.—The following is the programme of meetings for the first quarter 1887. The meetings are held at the Saw Hotel, Westgate, each Saturday evening, at eight o'clock. "The Lily of the Valley," Mr. L. Twigge. "The Camellia," Mr. J. G. Brown. "The Kitchen Garden," Mr. Moffatt, Morley. These have been read. April 2nd, "A Tour in Belgium," Mr. H. Oxley. Sale of periodicals. April 9th, "Treatment of Imported Exotic Orchids." Part I. Mr. W. J. Ireland. April 16th, "The Sagacity of Plants," Mr. T. Garnett. April 23rd, "Cultivation of Roses in Pots," Mr. Thos. Gartery, Rotherham. April 30th, "The Auricula," Mr. G. Gill. Sale of periodicals. May 7th, "The Sparrow" (with special reference to Rev. F. O. Morris' Book), Mr. A. Willis. May 14th, "The Potany of Fruits," Mr. Geo. Bott. May 21st, "The Functions of a Leaf," Mr. G. W. Fallas. May 28th, "A Ramble in Search of Shells," Mr. J. Hebden. Sale of periodicals. Messrs. H. Chapman and Geo. W. Fallas are the Hon. Secs.

— AT a recent meeting of the WAKEFIELD PAXTON SOCIETY at Councillor Lupton's, the Saw Hotel, Mr. Arthur Goldthorp presided, and Mr. Henry Oxley filled the vice-chair. Mr. J. G. Brown, gardener to Mr. J. B. Charlesworth, J.P., of Hatfield Hall, read a most interesting and thoroughly practical paper on the popular and beautiful flower "The Camellia." Mr. Brown, who has had considerable experience in the cultivation of Camellias both in Yorkshire and Kent, gave the members of the Society the benefit of that experience. He explained the various modes of propagating Camellias, and also minutely detailed the treatment required in order to produce successful results. A long and interesting discussion ensued on the paper, in which Messrs. W. L. Skinner, T. R. Preston, L. Twigge, G. Gill, and others took part. On the motion of Mr. B. F. Glover, seconded by Mr. E. Fenner, and supported by Mr. Twigge, Mr. Gill, and others, a very hearty vote of thanks was accorded to the essayist.

— A WELL known and respected Belgian horticulturist, M. CHARLES LOUIS DE SMET, died on the 16th, after a short illness, at the age of seventy-five. M. de Smet was Treasurer of the Syndical Chamber of Belgian Nurserymen, and for many years took a prominent part amongst the horticulturists at Ghent.

— A CORRESPONDENT informs us that "THE VISIT OF THE QUEEN TO BIRMINGHAM brought out considerable taste in the floral displays. To Mr. William Spinks, manager to Hans Niemand, the Reception Committee entrusted the plant decoration of the Town Hall, and the private luncheon and retiring rooms for Her Majesty; also the whole of the extensive plant decoration at the magnificent pavilion erected by Messrs. Edgington over the site for laying the foundation stone; and the interior and exterior of the Council House. The Mason College Trustees also entrusted the exterior decorations to Mr. Spinks, and he also supplied two magnificent bouquets for presentation to Her Majesty and Princess Henry of Battenburg by the Mayoress. Very high praise was given to these bouquets by the recipients. Mr. Charles Winn, whose celebrated collection of Orchids at Selly Oak, near Birmingham, is so well known, contributed specially for the luncheon room provided for the Royal party—fitted up in Oriental style and splendour—a rich display of cut Orchids and Fern, which called forth warm admiration. Messrs. Thomson, nurserymen and seedsmen, High Street, were commissioned to erect a large floral arch from their shop to the other side of the High Street, the large central arch spanning the roadway, with two smaller arches over the pavements. Rustic wood, taste-

fully arranged and filled in with Ivy and other evergreens, with projecting groups of plants in flower, created an effective display, which was much admired. Mr. Vertegans, nurseryman, presented the Mayoress with a bouquet, and supplied one for presentation to the Queen by the children of the Grammar School. The number of plants used by Hans Niemand was close upon 5000, amongst them many magnificent specimen Palms."

— THE March number of the *Kew Bulletin* contains some information on FIBRE PLANTS, the principal subjects being Sisal Hemp, derived from species of *Agave* and *Furcraea*, and Mauritius Hemp from *Furcraea gigantea*. Obtaining the fibre from the latter plant has developed into an important industry in Mauritius, where this *Furcraea* has taken possession of waste lands and abandoned sugar estates. It was introduced from South America in 1790, and has increased very largely without any assistance from cultivators.

— THE monthly meeting of LIVERPOOL HORTICULTURAL ASSOCIATION was held as usual in one of the lecture rooms of the Free Library on the 26th inst., when Mr. T. White presided. The subject of the evening was the "Rhododendron," by Mr. R. Wilson Ker, who treated fully of the origin and history of the different species and varieties, the discourse proving extremely interesting as well as instructive. A good discussion followed, in which Messrs. White, Mease, Ranger, Powell, and Cox took prominent part. Cordial votes of thanks to the essayist and the chairman brought to a conclusion a most successful session.

— "BRADWEN" writes:—"What a pity that the beautiful climber, *CLEMATIS INDIVISA LOBATA*, is so seldom seen. No plant can be more easily grown, with just a little ordinary care to keep down thrips and black fly, its worst enemies; and, on the other hand, I can think of no plant that produces such a profusion of acceptable blooms, chaste, white, and the most useful size either for mounting in bouquets, buttonholes, or any other purpose. Mr. Whitelegg, the able gardener at Oughttrighon House, near Lymm, evidently knows its value. There, a short time ago, I saw a remarkably fine plant with all its foliage completely hidden by the bloom. It was planted in a very narrow border just inside the greenhouse, the roof of which it covered, or at least all the woodwork in the roof was covered, the plant being trained closely in so as to obstruct little or no light from the other occupants of the house. By this means the objectionable appearance of the woodwork gives way to a graceful drapery of green, and, at the time of my visit, a glorious spectacle of the purest blossom. By a judicious choice of plants of a trailing habit much more could be done towards rendering our greenhouses attractive than is the case at present. Bare walls and rafters cannot but detract from the merit and beauty of specimens, however good, grown under such conditions."

— WE are informed that Miss Gordon has presented to the Museum of the Royal Gardens, Kew, the collections and drawings made by her late brother, General Gordon, illustrative of the *COCO DE MER* (*LODOICEA SEYCHELLARUM*), a Palm peculiar to the Seychelles, and remarkable, among other things, for possessing the largest known seed in the vegetable kingdom. The seeds are well known in European museums. One amongst General Gordon's specimens is a model which he had made of the fruit in its mature state, before the external fibrous but perishable husk had become detached. Some of the specimens are placed with others already possessed by Kew, in No. 2 Museum. The rest will be shown, with the drawings made by his own hand, in No. 3 Museum.

— WE regret to have to announce the death of M. JEAN JACQUES KICKX, Rector of the University of Ghent, Director of the Botanic Garden, and of the State School of Horticulture, President of the Royal Botanic Society of Belgium, and Chevalier of the Order of Leopold. He was born at Ghent on the 27th January, 1842, and died there on the 27th inst.

— HYACINTHS AT BRISTOL.—There are on view at the present time in Messrs. Garaway's Durdham Down Nursery, Clifton, a very effective display of Hyacinths in pots. They are arranged in three lines along one side of a span-roofed plant house, a background of Palms and Ferns, and a margin of trailing plants serving to set off the Hyacinths to the best advantage. There are 300 of them. There are a good selection of new, or comparatively new varieties, many of which are decidedly superior. Among the latter we noticed Lady Derby, white

and a fine bold spike; *Souvenir J. H. Vein*, rich dark blue; *Chimney Sweep*, the nearest approach to black; *Incomparable*, deep crimson, and very attractive; *King of the Reds*, bright red, very showy; *Sultan*, dark blue, spike compact; *Prince of Wales*, blue with white eye; *Primrose Perfection*, the best of the yellows; and *Marchioness of Lorne*, yellow, tinged and striped with red. Of better known sorts, the best both as regards size of spike, pips, and the colour, were *Garibaldi*, deep crimson; *Lord Derby*, porcelain blue; *Grand Maître*, porcelain blue; *Neetar*, white, good, distinct; *Queen of the Yellows*; *Czar Peter*, light blue; *Lord Byron*, porcelain blue; *Snowball*, white, compact spike; *Prince of Wales*, rose, good; *Von Schiller*, pale red, fine spike; *King of the Blues*, one of the best; *Prima Donna*, bright red; *Sultan*, dark blue, close spike; *La Grandesse*, white, good; *Madame Van der Hoop*, white; *General Havelock*, dark blue; *Fabiola*, bright rose; and *Innocence*, fine white.

— The ninth annual Show of the MAIDENHEAD HORTICULTURAL SOCIETY is fixed to be held on August 18th, 1887, in the grounds of Braywick Lodge, by permission of the President, J. Hibbert, Esq. One hundred classes are provided, including those for cottagers.

— A CORRESPONDENT directs attention to the fragrance of CERTAIN PRIMULAS as follows:—"Lovers of sweet-scented flowers find in the large *Primula* family some of the very sweetest. A walk through a *Primrose*-dotted lawn on a damp April evening is a delicious treat. The *Auricula* of the florist, if for no other reason, would be worth cultivating for its scent alone, the old yellow border variety having the *Dusty Miller* perfume in its most concentrated form. *Primula Monroi* is an exceedingly sweet-scented species, and for this feature alone we grow a few plants. The leafage of the Chinese *Primrose* is possessed of an extremely pleasing scent, though this fact does not seem to be generally known, no doubt because it is not of a pronounced character. But the sweetest of all the *Primroses* is that known as the *Abyssinian*, a plant which was pretty common about fifteen years ago, but has now been pushed aside by more novel though less interesting plants. This species comes into bloom about this time and flowers in whorls, one tier succeeding another for a lengthened period. One plant will perfume a good-sized greenhouse, and though not so "gay" as many other flowers at this season, its yellow blooms and mealy foliage are sufficiently attractive to make it of value as a decorative plant. It is of the easiest culture, a stock in the first instance being obtained from seed which, if sown now, would under good culture bloom the year succeeding. Old plants divide readily, and where only a few more are wanted this will be found the best method of keeping up a stock of healthy young plants."

— *Nature* states that the BOTANICAL COLLECTIONS OF THE LATE THOMAS MOORE, F.L.S., Curator of the Botanic Garden at Chelsea, belonging to the Society of Apothecaries, have been acquired for the Herbarium of the Royal Gardens, Kew. The most important portions are:—1, The general Fern herbarium, which contains the types of the numerous species described by Moore, especially those introduced into European cultivation. 2, The collection of forms and varieties of British Ferns, which is probably unique in richness and completeness; it is especially interesting as the basis of Mr. Moore's well-known and beautifully illustrated works on the Fern flora of the British Isles. 3, The Fern herbarium of R. Heward, F.L.S., which is especially strong in West Indian species.

— AT the usual monthly meeting of the ROYAL METEOROLOGICAL SOCIETY, at the Institution of Civil Engineers, 25, Great George Street, Mr. W. Ellis, F.R.A.S., President, was in the chair. Mr. J. Eyres, Mr. J. T. Hotblack, and Captain C. H. M. Kensington, R.E., were balloted for and elected Fellows of the Society. The following papers were read:—1, "Notes on taking Meteorological Observations on Board Ship," by Captain D. W. Barkor, F.R.Met.Soc. The author makes various suggestions as to the placing of meteorological instruments on board ship with the view of securing uniformity. 2, "Marine Temperature Observations," by Dr. H. R. Mill, F.R.S.E. After briefly sketching the principal historical methods of observing temperature beneath the surface of the water, Dr. Hill discussed in some detail the relative merits and defects of the two instruments now in common use for this purpose. The self-registering maximum and minimum thermometer on Six's principle, even with the addition of an outer bulb to protect it from pressure, has certain inherent defects. It merely shows the highest and lowest temperatures

passed through, the indices are liable to be shaken from their proper position, and it requires long immersion in order to attain the temperature of its surroundings. Mr. J. Y. Buchanan has shown how, by the use of mercury and water piezometers, the actual temperature at a given point may be obtained, no matter how the temperature between that point and the surface may vary. Such instruments have not been much used, and now a modification of the mercurial outflow thermometer, patented by Messrs. Negretti & Zambra as the standard deep-sea thermometer, is largely used. When fitted in a frame which admits of the thermometer registering at a precisely known depth, admirable results are obtained by it. The manner of using these thermometers in the Scottish frame, and of conducting temperature trips in comparatively shallow water, were described, and the best ways of recording the observations and elaborating the results were alluded to, the work of the Scottish Marine Station on the Clyde sea area being taken as an illustration. The importance of marine temperature observations as bearing on submarine geography, on navigation, on the distribution of animal life, and consequently on fisheries, was alluded to. The paper was illustrated by diagrams and by the exhibition of the apparatus, which was described. After the reading of these papers the meeting was adjourned in order to afford the Fellows an opportunity of inspecting the Exhibition of Marine Meteorological Instruments and Apparatus which had been organised under the auspices of the Society.

SPRING GARDENING AT KEW.

NOW that the days are lengthening and the sun is becoming more powerful the pretty flowers of spring are everywhere studding the ground. The sight of these spring flowers, notwithstanding the perfection attained in modern times, has the same fascination for us to-day as they had for our predecessors fifty or a hundred years ago, much of the pleasure derivable from outdoor plants depends, however, on whether the position be a natural one or otherwise. A group so placed as to position and surroundings as to give it a natural appearance has a charm of its own that is quite lost in the slipshod way often practised of dibbling in bulbs or plants anywhere and everywhere an open space presents itself without the least regard to effect, associations, &c. In planting even such common bulbs as the Wood Hyacinth, the Daffodil, the Snowdrop, Crocus, &c., something more is required than the mere effort of planting, however carefully that may be done. To render the effect all that may be desired the surroundings, the position, exposure, after effect, and a host of other and perhaps minor points have all to be fully considered by the careful gardener before committing his bulbs to the ground, and these are often the points left out of count altogether. A natural style should be the gardener's aim, and although this has been to a large extent lost sight of in modern times, the popularity of what is now termed wild or spring gardening tells us that we are returning to the old state of things before the introduction of ribbon and carpet bedding. In hundreds of gardens in this country facilities are afforded for making this phase of gardening a grand feature, and that, too, at a comparatively small cost in obtaining the bulbs in the first instance. No greenhouses are required for wintering these harbingers of spring, and little or no trouble besides that of keeping the ground free of rank weeds during the growing season.

At Kew, as the leading public garden, much has been done within the last few years to show how this can be effectively carried out, although from the peculiar and flat character of the ground generally the task has been to all appearance the reverse of an easy one. The grounds are hardly varied enough to show this style of gardening on the extensive scale it merits; such as they are, however, they seem to have been taken advantage of at every point, as the present effect amply testifies. Nothing of the kind we believe had been hitherto attempted at Kew, and the interest it awakens in the visitors has already done much to popularise this charming style. The wild garden, as it is called at Kew, commands a prominent position in the form of a large mound to the south of the rockery, and divided from the rockery by the main walk from the Cumberland Gate, it borders No. 1 Museum, the pond near the Palm house, the walk from the latter house to the T range flanking the west side of it. Tall forest trees are a prominent feature, and a clump of old weather-beaten Box trees show well on the slope. One or two old Cedars on the east slope, underneath which the ground is covered with Ivy, forming a fine natural evergreen bank. A few clumps of mixed shrubs, Roses and Rhododendrons, with a fine bed of Yuccas in a prominent position, help to brighten it during the dull months of winter. On the highest point is the Temple of Æolus, of which a peep is to be had only at intervals among the dense foliage. On the slope and facing the Cumberland Gate are myriads of the quaint Winter Aconite (*Eranthis hyemalis*), showing how well it thrives on a sloping position; another portion is thickly covered with Squills, *Scilla sibirica* and *bifolia*, intermixed with Winter Aconite and Snowdrops, on a thin groundwork of the Lesser Periwinkle (*Vinca minor*), and behind these are thousands of Snowdrops, the common single and double, and *G. Elwesii*, the latter apparently not so much at home as *G. nivalis*. A gentle rise behind this is covered with Primroses, and thickly planted with Daffodils, which will be a grand sight, as we are told that some-

thing like 30,000 bulbs have been planted of the common *Nareissus pseudo-Narcissus*, besides thousands of wild Hyacinths, White Lilies, clumps of Gentians, and a fine patch of *Cyclamen neapolitanum*, which seems quite at home, hundreds of seedlings strewn the ground all around. *Anemone nemorosa* is also being introduced, as were Crocuses, the spring yellow and purple varieties covering the ground; they present a welcome sight sparkling on their bed of green. A large clump of *Hydrangeas* seems quite at home, as also do the Oriental Poppies, Mulleins, and other tall plants. A large bed of *Cistus* has escaped the winter almost scatheless, notwithstanding its unusual severity. On the Cumberland Walk an unusually large plant of *Gunnera scabra*, and another of *Polygonum sachalinense*, occupy the foreground, and handsome they look in their summer foliage with their graceful arching leaves and stems.

The ground near the lake in front of Museum No. 1 has also undergone a great improvement lately. Here we see the Japanese Iris (*I. Kämpferi*) quite at home, with its roots almost in the water, specimen plants of *Gunnera scabra* and *G. manicata*, clumps of *Spiraea palmata*, &c.; and the banks, almost to the water's edge, thickly planted with the Poet's Daffodil, *Fritillaria Meleagris*, and the autumn *Colchicum*. All this and much more is being done for natural gardening at Kew, and although as yet in an embryo state, it will improve yearly as the bulbs get established, and no doubt additions will be made as opportunities offer.—A VISITOR.

MARIE LOUISE PEAR.

THE engraving (fig. 46) illustrates a tree growing in the Elvaston Castle Gardens, only planted eight years on a south aspect in a prepared border of good loam. When bought from the Upton Nurseries, Chester, it had four pairs of horizontal branches with a good leader; it is now 32 feet high, and has thirty-one pairs of horizontal branches, mostly 8 feet long from the main stem. This tree has not only grown well, but has annually produced a heavy crop of fruit. Last season 4 bushels of Pears were gathered from the tree, and this year it had fifty-seven dozen fruit. The tree is well attended to with water, and receives supplies of liquid manure from the farmyard. The fruits are thinned and regulated, and the tree is protected when in bloom. We begin to take the crop early in September, and put these first-gathered Pears into boxes to ripen, as this gathering is liable to shrivel if laid on the open shelves in the fruit room. The next gathering is made in October, clearing the upper part of the tree. The fruit on the lower part is left to hang as long as possible, in order to prolong the season of this highly esteemed Pear, and this year we had some hanging at Christmas. This system enables us to have this variety in use for nearly three months. We grow about 100 varieties, but the Marie Louise is the most appreciated of them all.—J. H. GOODACRE.

LONDON'S LESSER OPEN SPACES—THEIR TREES AND PLANTS.

NEW SERIES. — No. 2.

IT is pleasant to talk about our numerous and thickly populated London suburbs, the many indications of a widely spreading taste for gardening, which cannot but prove of great moral benefit to the people. We see signs of it now, when winter is yielding to spring, and find old and young busy in turning up their garden plots, which are frequently decorated with early bulbs. Their culture is not devoid of its cares, for these as they bloom must be protected from sparrows, cats, and petty thieves. For the most part it is not the custom of the managers of our smaller open spaces to attempt any display of spring flowers, except the distribution of some Crocuses and Wallflowers, the reason doubtless being usually insufficient funds for the purpose. Something might be done at little cost with shrubs or trees that bloom early, but not in the radius where London smoke much affects vegetation.

Clerkenwell and its vicinity may boast of many rural and horticultural memories, if now it presents few attractions. Rising above the City it had, we are told, on all sides but one a prospect of wooded hills, which were vales of luxuriant verdure, and here and there a vineyard or orchard. On the west, in a secluded dell, the river of Wells took its rise, and flowed circuitously to the Thames, joining the Fleet and the Old Bourne. Saffron Hill, at one season, was blue with the flowers of that plant; and about the City Road were many gardens, some in which citizens grew Roses and other flowers, some where the early costermongers raised vegetables to sell in Golden Lane. Somewhere in Old Street the poet Daniel had his garden and rosery in the reign of James I., and one John Milton had a nursery for choice plants. I had a hope that Bartholomew Square, a small open space yet extant, might prove to be a relic of one of the older greeneries; but, alas! if so, it is now converted into a place for refuse by its inhabitants, though it contains a few dismal shrubs.

To reach Clerkenwell from the City Aldersgate was the readiest way, a gate so named, some say, because Alder or Elder trees grew thickly just outside the walls; but others think it alludes to the antiquity of the gate. Part of the vacant space here became the

churchyard of St. Botolph, which is now free to the public and made into a garden. Being only about half an acre it is at times so full of people that gardening operations have to stop awhile. It has one Poplar surviving of medium size, but once had several; but some have

Yuccas and some varieties of the Privet and Holly; also annuals came up fairly, and that London favourite, the Mignonette, could be made to perfume the air for awhile about the time when part of the borders were filled with choicer flowers. Early in March I found the Lilacs



Fig. 46.—MARIE LOUISE PEAR TREE IN THE ELVASTON CASTLE GARDENS.

been lately planted, also Limes and Planes, which flourish, though in a smoky air, and the evergreens have done well under the careful attention of the present gardener, who occasionally cleanses the leaves of Aucubas and similar species that are apt to have their pores clogged. Thujas, he found, failed from some cause, but he was proud of his

were opening their buds. This shrub is recovering wonderfully from the severe insect attack it had last autumn in the north suburbs of London. A good plan has been adopted here: boxes are placed for the reception of waste paper, or other litter. In these London enclosures one trouble is with the grass plots; even if they are not allowed to be

trodden over, the grass refuses to flourish. I notice some try the experiment of covering the surface with stable manure in the winter. I do not think this is of much use; occasional resowing seems the best measure.

The larger part of the ground attached to St. Luke's, Old Street, about an acre, was thrown open nine years ago, a footpath dividing it from the smaller, which is crowded with tombs, many of which, however, are nearly concealed by the Ivy which has been freely planted. Its Elms, comparatively small, are offshoots from the older trees which once shaded the walks, and there are a few Black Poplars. In the ground that is now a garden the centre is cleared of monuments, these being arranged along the sides, and in some instances partly hidden by stonework, amongst which not very successful attempts have been made to cultivate Ferns and ornamental creepers. Beside the ordinary evergreens there have been introduced some that are half-hardy, and these it is necessary to protect during winter by straw or matting even in this district, for the changes of temperature are apt to be sudden, so that such plants as *Pyrus japonica* and *Veronicas* crave warmth at their roots. Like some other London gardens this has a profusion of common Iris and the familiar Saxifrage. By means of a slope towards the middle, and the circuitous arrangements of the paths, the idea is given of a greater extent than is actually the case. This is always to be studied in laying out a small space, and too much formality is objectionable. When seeds are sown it is necessary to protect them with a covering of prickly boughs from cats and bipeds, feathered or bare, but only a few annuals or biennials are tried in London borders, a slight stimulus is necessary beside frequent watering.

Wilderness Row, in a line with Old Street, reminds one that it crosses or skirts what was the wilderness or shrubbery attached to the Charterhouse, which yet remains untouched by the hand of improvement, though the grounds are diminished. Within its ancient enclosure doubtless the old Carthusian monks raised a variety of plants, for convents nursed horticulture through the dark ages. Amongst the many changes this place has seen, it was once a school, and peeping through the railings we may perceive the round playing green, one side of which is shaded by Elms and Limes, but it is threatened by the march of improvement. Close by is the three-acre space of Charterhouse Square, for some centuries only a yard or exercise ground for horses, hence it has no ancient trees, but some scattered shrubs and narrow flower borders, and might be easily made a pleasant garden for the locality at a moderate outlay. Northampton and Wilmington Squares, Clerkenwell, a little to the north, exemplify how a small space may be turned to good account. Each is about an acre, and they were opened to the public in 1885, being the property of Lord Northampton.

Northampton Square is a fragment of a small park that was attached to the family mansion, which stood at the corner of Ashley Street. Having heard its *Planes* commended as some of the finest in London, I found them scarcely equal to my expectation. There is a group of nine and ten, tall ones certainly, yet I have seen many superior in girth. This is one of the gratifying exceptions, where the beds are planted with spring bulbs, and the same is the case in Wilmington Square; these are also labelled in legible characters for the public benefit—another advantage. I have always considered the removal of the labels formerly placed against many trees and shrubs in the royal parks was a mistake, as thereby both young and old picked up easy lessons in botany. The introduction of vases filled now with Crocuses, Tulips, and Lilies, later on with Pelargoniums and summer flowers, helps to give a cheerful appearance to a small enclosure like this, but I have doubts about the pigeon house, which is a recent addition to this and some other Squares. These birds are scarcely helpful in a garden. Both these Squares instance the fact by their evergreens, that the large-leaved kinds, such as the *Aucuba* and *Laurel*, cannot throw off the effects of London smoke as do many small-leaved species. Close to Wilmington Square is the enclosure of New River Head, with some extent of shrubbery, and where the moisture favours the growth of Alders, Poplars, and Willows. It also contains some fine Lilacs and old Hawthorns, but the latter respond slowly to the touch of spring.—J. R. S. C.

BATH BULB SHOW.

MARCH 23RD AND 24TH.

On this occasion the Bath Floral Fête Committee were fortunate in having very favourable weather on the opening day, the much-needed change of weather occurring just in time. The Exhibition was undoubtedly well ahead of any of the kind previously held in Bath, and as the attendance was good the Committee have reason to be satisfied with the successful termination of the first of the series of five shows to be held in Bath this year.

The first class in the schedule was for eighteen Hyacinths in pots, distinct, and of these there were four good lots shown. The first prize was well won by Messrs R. Veitch & Son, Royal Nurseries, Exeter, who had massive fresh spikes of *Gigantea*, President Lincoln, Charles Dickens, La Candeur, Queen of the Blues, Garrick, Ida, Vuurbak, King of the Reds, Marchioness of Lorne, Grand Lilas, The Sultan, Garibaldi, Lady Derby, King of the Blues, Lord Macaulay, and Nectar. The second prize was awarded to S. Tredwell, Esq. (Mr. Cole, gardener), Bath, who had an ever and good lot, which were certainly not improved by being shown in pots known as "Long Toms." S. P. Budd, Esq. (W. Taylor, gardener), took the remaining prize. The last named gentleman was easily first for twelve Hyacinths in six pots, these consisting of Duc de Malakoff, King of the Blues, L'Innocence, Czar Peter, Gigantea, and Lord Macaulay, all very good in every respect. Mr. A. J. C. Biss was second for a credit-

able exhibit. Messrs. Veitch & Son were again successful with nine distinct varieties, among these being very fine examples of *Minerva*, Leopold II., and other varieties previously named. R. B. Cater, Esq. (F. W. Fisher, gardener), was a good second. In the amateurs' class for twelve distinct Hyacinths, M. Dunlop, Esq. (G. March, gardener), Bristol, took the lead, having massive well-developed examples of L'Innocence, Leopold II., Koh-i-Noor, Queen of the Blues, La Grandesse, Obelisque, King of the Blues, Faviola, Mont Blanc, Captain Boyton, and Lord Macaulay. S. Tredwell, Esq., was second. The best six varieties were staged by R. B. Carter, Esq., M. Dunlop, Esq., being a close second. Tulips on the whole were not so good as usual. The best twelve pots were staged by Mr. A. A. Walters, Bath, who had L'Immacule, Crysolora, Keyers Kroon, Paragon, Duchesse de Parme, Roso Gris de lin, and Eleanor in good condition, the second prize going to Messrs. Cooling and Son, who also had a good lot. With four pots of Tulips, M. Dunlop, Esq., was easily first, having very fine Vermilion Brillant, Proserpine, White Pottebakker, and Joost Van Vondel. Mr. A. A. Walters was second. The best six pots of *Polyanthus Narcissus* were shown by S. Tredwell, Esq., who had good examples of White Pearl, Gloriosus, G and Monarque, Soleil d'Or, and Gonde Roemer. The Rev. E. Handley (Mr. S. Kerslake, gardener), Bath, was second, and the last named ought to have been placed first for twelve pots of Daffodils, his collection being much greater than the first prize lot shown by Mr. A. A. Walters. The best represented sorts were *Telamonius plenus*, *Maximus*, *Single Incomparabilis*, *Sulphur Phoenix*, *Rugilobus*, and *Lemon Pœnix*. T. Jolly, Esq. (A. Hawkins, gardener), Bath, was first for Crocuses, and C. A. Dutton, Esq., second. Lilies of the Valley were shown in large pots and were crowded with bloom, quantity rather than quality prevailing. S. P. Budd, Esq., was first and Messrs Cooling and Son second. There were several good lots of Cyclamen shown. The Rev. E. Handley was well first with capital plants, the strain being of the best, S. P. Budd, Esq., being second, and Mrs. Robertson (Mr. W. Porter, gardener), Bath, highly commended. T. Jolly, Esq., was first for *Amaryllis*, and S. Tiedwell, Esq., second.

Three classes were provided for Orchids in each of which the competition was close and good. For six varieties, H. Cruger Miles, Esq. (F. Perry, gardener), Bristol, was first, having strong well flowered pieces of *Dendrobium nobile*, *Vanda suavis*, *Cypripedium villosum*, *Lycaste Skinneri*, and *Cypripedium Boxalli*. The Rev. E. Handley was a good second, *Dendrobium thyrsiflorum*, *Cattleya Trianae*, and *Dendrobium nobile* being conspicuous in his group. E. E. Bryant, Esq. (W. J. Monld, gardener), was first for three varieties, these consisting of a good *Cattleya Trianae*, *Pbalanopsis Schilleriana*, and *Odontoglossum gloriosum*. Messrs. J. Cooling & Son were second. In the class for one variety the Judges committed the strange mistake of putting a large but not particularly well flowered pan of *Cœlogyne cristata*, staged by the Rev. E. Handley, before a *Dendrobium Ainsworthi*, with nine beautifully flowered pseudo-bulbs, staged by H. Cruger Miles.

Roses in pots were not quite so good as usual. R. B. Cater, Esq., was first for six specimens, and S. P. Budd, Esq., second, the best represented sorts being *Madame Lambard*, *Isabella Sprunt*, *La France*, *Rubens*, *Madame de St. Joseph*, and *Isaac Perriere*. Several large well flowered Azaleas were shown. The principal winners with these were E. E. Bryant, Esq., Mrs. Jones, and Colonel Landon. The first named had a very fine pyramid of *Roi d'Hollande*. Stove and greenhouse flowering plants were well shown by several growers. E. E. Bryant, Esq., was easily first for four specimens, these consisting of Hybrid *Rhododendron Veitchi laevigatum*, fully 4 feet through and grandly flowered, *Ganetyllis Hookeri*, *Eustoma cuspidatum*, and *Azalea Gloire de Belgique*. Mrs. Doherty (H. Jones, gardener), Bath, was second. E. E. Bryant, Esq., was also first, six fine-leafed plants and Mr. W. C. Drummond, Bath, second, both have large specimens of well known Palms, &c. Exotic Ferns were also well shown, E. F. Bryant Esq., being first and Mrs. Doherty second. A few good table plants were staged, H. Cruger Miles, Esq., being first and S. Budgett, Esq., second. *Cinerarias* were well shown by S. Tredwell, Esq., who was easily first, the second prize going to Mr. A. J. C. Biss. Mr. Treadwell was also first for a pretty collection of hardy herbaceous plants in flower. There were two collections of plants arranged on a space 12 feet by 6 feet, Messrs. G. Cooling & Sons being easily first with a capital arrangement, which included various good Orchids, beautifully flowered Azaleas, Roses, Solomon's Seal, and other forced plants, Arums, Crotons, Palms, and Ferns. Mr. W. C. Drummond was second. Three smaller groups were arranged by amateurs, each comprising numerous well flowered Orchids, Azaleas, and various other showy plants. Mr. E. E. Bryant was first and Mrs. Doherty second. The best basket of plants was sent by R. B. Cater; in this *Odontoglossum*, *Amaryllis*, and Hyacinths, interspersed among Maidenhair Ferns, had a very pretty effect. S. Tredwell, Esq., was second.

Messrs. G. Cooling & Sons had the best stand of cut Roses, among these being good blooms of *Lady Mary Fitzwilliam*, *Countess of Pembroke*, *Niphetos*, *Hon. G. Bancroft*, *Alba rosea*, *Maréchal Niel*, and *Duke of Connaught*. The second prize was well won by S. P. Budd, Esq. Vases of cut flowers were of great excellence, the choice flowers with which they were principally filled being very lightly and tastefully arranged. Mr. E. Thomas, Bristol, was first, and Mr. E. S. Cole, Clifton, second, Mr. W. Dobson, Bristol, being highly commended. The first prize for a bouquet was awarded to Messrs. Perkins & Sons, Coventry, whose exhibit was conspicuously large and beautifully arranged. Mr. C. Cypher, Cheltenham, was second with a bouquet formed in their well known style. Mr. Dobson had the best spray for a lady's dress, and Mr. C. Winstone was second.

Apples admirably represented in the class provided for a dish of any sort. W. M. Baker, Esq. (J. A. Lin gardener), Gloucester, was first for a handsome and well kept dish of *Ribston Pippin*, Mr. A. W. Southard being a good second with the same variety. In addition there were found highly coloured examples of *Benheim Pippin*, *Cox's Orange Pippin*, *King of Pippins*, and *Dutch Mignonne*. Fewer Pears were shown. Mr. R. Hooper Taylor was first for a good dish of *Beurré Rance*, and Mr. E. Hall second with *Easter Beurré*. Mr. E. T. Fisher was deservedly awarded the first prize for six varieties of vegetables, these consisting of good *Seakale*, *Asparagus*, early *White Broccoli*, early *Potatoes*, *Carrots*, and *Parsnips*. Mr. Evry, Bath, was first for a basket of salading, and Mr. Fisher second, these exhibitors

occupying the same positions for Seakale, and Mr. Evry was also first for Asparagus, and Mr. G. Garraway second.

There were several non-competitive exhibits, the most noteworthy of these being the group brought and arranged by Mr. J. Cypher of Cheltenham. This occupied half of one side of the hall, and attracted much attention, Orchid fanciers being especially interested. Messrs. R. Veitch & Son, Exeter, Messrs. Cuthush & Son of Highgate, and Messrs. Cooling & Son, also exhibited attractive collections.

NOTES ON GRAPES.

My praise of Alnwick Seedling does not satisfy some writers, but I still repeat that even in October it will be superior to Black Hamburgh; by keeping it well grown it is better still at Christmas, the briskness and aroma being very marked. It has a certain sharpness or acidity which some may object to, and perhaps if grown under unfavourable conditions, such as low temperature, bad positions, and unsuitable soil, it may probably be sour without being shanked. I well remember the few telling words of Mr. Barron in December at Chiswick. He then had it in good condition, being grown with Gros Colman, and he praised the flavour much. "No Grape," he remarked, "is equal to it." In his book on Vine culture I find it reads thus:—"Flavour strong and sparkling, becoming rich and sweet when well ripened, in that respect very much resembling the Black Morocco." This Grape for some cause has a tendency to slightly shrivel in the skin when the foliage is going. I think possibly this may be due to extreme bright sun, together with a want of water at the roots, or even atmospheric dampness. I do not keep many Madresfield Court even till October, for the reason that they lose colour, though I have a few in November. Here flavour, compared with Alnwick Seedling, must undoubtedly have the day; but Alnwick can be eaten after Madresfield Court, just as Loxford Hall Strawberry can be eaten after British Queen.

It seems I must not praise that noble variety, the Alicante. Why the public prefer Alicante in July, giving double price for it, compared with Black Hamburgh, is a mystery. In a cold house we had a bunch or two of Gros Colman, and kept them, but side by side with well grown samples they will not do. The past season more than ever confirms my supposition that Grapes can be improved by feeding not only during the growing season, but up to the colouring of the fruit.—STEPHEN CASTLE.

CRYSTAL PALACE SHOW.

MARCH 26TH.

ALTHOUGH the exhibits were not quite so numerous as on some previous occasions there were sufficient to make a bright and effective display, to which the new competing contributions added materially. The Hyacinths, Narcissi, Cyclamens, Cinerarias, and Daffodils occupied the greater portion of the space in the centre transept, the groups of Roses, Orchids, and miscellaneous plants being disposed near the stage and the orchestra. Numerous plants were also included from the Company's houses, which Mr. Head arranged tastefully in suitable positions, one specimen of *Brownea coccinea* hybrida attracting much attention from the visitors. The Brownias are handsome plants, but seldom seen out of hotanic gardens, and perhaps one reason is that they do not flower so frequently as might be desired. When, however, they do produce their great drooping clusters of brightly coloured flowers they are very telling. In the one under notice the flowers are of a glowing rosy scarlet hue and crowded in large heads, the leaves being pinnate with twenty pinnæ. A certificate was awarded for the plant, which was in excellent health.

The Roses in pots from Messrs. Paul & Son, Cheshunt, and Wm. Rumsey, Waltham Cross, formed two pleasing groups, the former having some beautiful examples of Madame Victor Verdier, with the pretty Polyantha varieties, Paquerette and Mignonette, while Mr. Rumsey had Madame Montels, Duc de Montpensier, and Général Jacqueminot, remarkable for the brilliancy of their colours. Messrs. J. Laing & Co., Forest Hill, staged an attractive group of choice plants, amongst which Orchids were largely represented, Cattleyas, Dendrobiums, Odontoglossums, *Ada aurantiaca*, and Phaius, with Imantophyllums, Palms, and Ferns. Messrs. Barr & Son, King Street, Covent Garden, had a magnificent collection of Daffodils of innumerable varieties, as also had Mr. T. S. Ware, Hale Farm, Tottenham, both including other spring flowers, such as Anemone fulgens, Chionodoxas, Scillas, &c. Messrs. H. Williams & Sons, Finchley, arranged a group of Hyacinths, Azaleas, Polargoniums, Cytisuses, and Daffodils, exceedingly bright, with a preponderance of yellow that would be rather displeasing to some. Mr. H. James, Castle Nursery, Norwood, exhibited a group of plants arranged for effect, and was awarded the premier prize, the chief plants employed being Epacrises, Azaleas, Richardias, Palms, Ferns, and Dracænas, edged with Isoplepis and Maidenhair Ferns.

In the classes for bulbs in pots the leading prizes were won by Messrs. H. R. Wright, Lee, and Williams & Son, Finchley; Mr. James, Slough; and Mr. Salter, The Gardens, Selborne, Leigham Court Road, Streatham, having the best Cinerarias, Messrs. Paul & Son the best Amaryllises, Mr. Luff the best Lilies of the Valley, and Mr. J. Odell with the St. George's Nursery Company the finest Cyclamens. But the bulbs were not up to their usual style, the spikes of the Hyacinths especially seeming deficient in size and substance of the bells.

ON SOILS.

(Continued from page 172.)

OF the materials most valuable for applying to land some observations relative to the different variety of soil may be made, as, for instance, sandy loams have great absorbing power. They are hungry soils—that is, the organic matter is quickly diffused and appropriated by the plants, necessitating frequent renewals. According to analysis, the best possible application that could be made for the current crop is phosphates and

alkalies, or artificials yielding a large per-centage of potash in some form, say kainit, kelp, fish manure, and superphosphate of lime conjointly, and large producers of such crops as Carrots, Onions, Potatoes, &c., result; but is the land better, or is it worse after, than it was before the crop? The most profitable succeeding crops are Brassicas or cereals, which require lime, soda, and sulphuric acid. Instead of using phosphates and alkalies give the land a surface-dressing of clay or marl, which generally prevail under or in adjoining or intervening beds at the rate of 100 tons per acre; disintegrated and divisably mixed with the soil we do many things more than is effected by the artificials, the most important being the increase of the staple, retentive power, and permanent improved condition of the land, in that it will in future be better capable of employing the manurial matter committed to it. From the clay marl we get potash, sulphur, salt, and phosphates, for amalgamating with the silica and lime.

Clays are most benefited by applications of farmyard manure on account of the silica contained; in fact good loams and clays may be termed soils to which nothing comes amiss in the shape of organic matter, but the most important are silicates and lime. Dressings of road sidings with an equal proportion of lime effect the most valuable and permanent results; indeed, dressings of lime are often magical in effect, especially on garden soils long subjected to liberal manuring and heavy crops, more particularly where the cultivation is of a surface character. Calcareous loams, like clays, are benefited by farmyard manure, particularly from cowyards, and even more so by sheep or horse manure, all of which are more valuable for clays and good loams than either of the others, and so are pigeon and fowl dung. The ammonia salts are most beneficial, but the same objection to their employment applies as to sandy loams. They are certainly better than nothing, but silicates being deficient manure is very valuable. To a hot chalky or shallow sandy loam the most valuable dressing is probably pond cleanings and ditch scourings, as they furnish alumina, silicates, and humus. The value of such is greater on chalk than on sand, but if care be taken to keep the softer parts for the sands and the heavier for the chalks these substances effect a permanent improvement. Clay also is a very important dressing for calcareous soils, and it need not be of a marly description as advised for sandy soils. There are peat and bog soils, the great corrective for which is lime, and the changes effected by cultivation; the most important factor in reclaiming such soil is the conversion into ash of the primitive vegetation, if woody, by burning, or if of an herbaceous character, turning into the soil so as to enrich it by its decay.

It may be observed that no cultivator aiming at the improvement and continued fertility of the soil will neglect opportunities of increasing its staple with such material as is accessible, and is lying idle and injurious at his gates. Clay can be had for the digging for calcareous soils, also marl for sands, and pond and ditch cleanings; heaps of rubbish only need putting on land of a shallow and hot nature to benefit them. Clay will take almost any amount of road scrapings and sidings, the *débris* of old buildings—anything, in fact, containing silica and lime, and even ashes or rubble, only fine enough as not to interfere with the cultivation of the soil. These substances, in their several applications, effect important mechanical changes in the soil. Before quitting this part of the subject, I may remark that the use of artificials may be characterised as unimportant from an improving point of view, and are more likely to impoverish than to maintain the fertility of the soil. As regards the mechanical texture, we have to consider its original, at least the condition it obtains. There is in most a surface or crust of soil of a mellow texture, the result of a long course of cultivation. Beneath this is the pan. The surface soil is a few inches deep, as it has been stirred by the plough or spade; it may have been subsoiled—it will be double the depth of the single-ploughed; or it may have been trenched—it will be much deeper than that under ordinary spade husbandry. This pan may be called the sediment or dregs of the mellow surface, which is inorganic substances washed or filtered out of the surface, principally silica or lime, and it marks the division of the surface and subsoil. There is a difference between the pan of virgin soil and that of cultivation, but for all practical purposes none need be made; therefore we will consider the line of demarcation is to be there as regards fertility and sterility. Above we have earth mixed in varied degree as regards organic and inorganic substances, the staple having been broken and manure applied; beneath we have a stubborn mass of a varied character which, as we express it, has never seen daylight, and it consists for the most part of inorganic matter that requires a gradual preparation to render it fit for plants.

But great caution is needed in dealing with the pan. It can be brought to the surface by subsoil ploughing or deep trenching, the top ameliorated, good material being buried under a stratum of ernde material, which will take as many years of manuring and knocking about to render equal for profitable cultivation as it took centuries of the combined efforts of the atmosphere and plants to produce naturally to the original mellow surface, and now so ruthlessly buried. In breaking up the pan the digging, dragging, smashing of the steam plough, that effects no more than loosening and deepening, only mixing some of it with the soil above, and bringing but a little to the surface, leaving the major part of the stubborn material where it was for a time at least, but in a different state—viz., impenetrable by rain, air, and roots, and so by being freely knocked about without any radical interference with the good material, the deep rooting of the plants, and the disintegration will at once increase the food supplies, assist in their manufacture for a considerable, if not all, time, or until such time as a pan is again formed, and which ought to be prevented by the renewal of the process. Similar

remarks apply to trenching. The good soil ought not to be buried under a mass of erude material, but the subsoil cannot be too deeply loosened and broken, no harm accruing if a little is brought to the surface; in fact, it will be more beneficial than otherwise through supplying inorganic substances, the surface being rendered deficient thereof by the sifting and descent consequent on tillage or removal of crops. The tendency of all inorganic substances is to descend. The tendency of trenching is to deepen the good soil, to insure the full benefit of light, air, and moisture, and this mechanical tillage, now woefully neglected, is of the first importance in all operations in connection with the soil, and guides all successful horticultural operations.

We must break up the staple that decomposition, whether of the atmosphere, the soil constituents, plant and animal remains, may liberate and accumulate more abundant supplies of plant food, applying fertilisers that will rectify the natural deficiencies, or those resultant of cropping.—G. ABBEY.

GLOXINIAS PLANTED OUT IN FRAMES.

TAKING into consideration the beauty and the many different and striking colours of these flowers, I think it will be generally admitted that there are few stove plants to surpass them. They can be had in flower from April till October where there is a sufficient quantity to start them in succession, beginning with the first in January and the last the latter end of May, draughting out those which are inclined to start first each time. Those started at the first mentioned time will need the assistance of bottom heat, otherwise they will make but slow progress. Those started later will come on fast enough in any properly heated stove or pit if carefully attended to. This is the ordinary way of growing Gloxinias.

The system of planting them out in frames was advocated in the Journal of May 20th last year by Mr. J. Udale; and having a batch of seedlings at that time I was induced to try the plan, and I need hardly say I was surprisingly satisfied with the result. It may be that there are some new readers of the Journal since that time, and I thought it would not be out of place to record my experience. The seed was sown the 19th of February. In due time the seedlings appeared and were pricked out in pans when large enough. They remained in the pans until the leaves were about 1½ inch long; they were then planted out on an old Cucumber bed in a pit without much ceremony, the rubbish being simply cleared away, and a little peat and coarsesand and a small quantity of wood ashes mixed with the surface of the soil the Cucumbers grew in. They were watered and shut up, air being given when the sun shone on the pit, and plenty of water when dry. In about a month they began to flower, and from that time till the end of October they were a sight not easily to be forgotten—one mass of flowers with foliage as large as ordinary sized Cabbage leaves. As soon as they died down the roots were lifted and stored in boxes in sand; and now, after resting all the winter, some of them measure over 10 inches in circumference. I have just potted a lot of them, and they promise to make very fine plants. The great advantage in planting them out over growing them in pots is that we have a much larger quantity of flowers from them, and they make much finer roots the first year. They should be planted a foot apart each way, rather more than less, as it is surprising how soon they fill up the space.—R. M.

NEW PLANTS OF 1886.

(Continued from page 198.)

Infl., Inflorescence.—*L.*, Leaves.—*Fl.*, Flowers.—*Fr.*, Fruit.—*H.*, Hardy.—*H.H.*, Half-hardy.—*G.*, Greenhouse.—*S.*, Stove.—*Per.*, Perennial.—*Shr.*, Shrub.—*In.*, Inches.—*Lin.*, Line = One-twelfth of an inch.—*Ft.*, Foot or Feet.—*Diam.*, Diameter.—*Pet.*, Petals.—*Sep.*, Sepals.

N.B.—Unless specified, all Orchids may be considered to be stove epiphytes.

MACROCHORDIUM MACRANTHUM. (*Gfl.* 1886, p. 297, f. 34.) Bromeliaceæ. S. A fine Bromeliad, with long recurved and bent spinous-toothed l., of a dark shining green above, densely white punctate-striate beneath. Peduncle shorter than the l., white-woolly, with long narrow bracts, and a small globose head of small yellowish fl., which fade to black. Brazil.

MAGNOLIA BIFLORA. (*R. H.* 1885, p. 521.) Magnoliaceæ. H. tree. A variety of *M. grandiflora*, which almost always produces the flowers in pairs, which open in succession. Garden variety.

MAMMILLARIA BARBATA. (*Gfl.* t. 1208, f. a-c.) Cactaceæ. G. succulent, with short cylindric stems densely crowded with cylindric mammillæ; outer spines radiate consisting of fine setæ and stouter spines mixed, central spine longer than the others, hooked at the apex. Fl. about an inch in diam., pale red with violet mid stripes. Texas.

MAMMILLARIA ECHINATA. (*Gfl.* t. 1208, f. d. e.) G. succulent. A dwarf tufted plant, very ornamental when in fruit. The stems are globose, about 1½ in. in diam., with crowded cylindric mammillæ crowned with short radiating spines. Fl. reddish outside, white within. Fruit Pear-shaped, bright red.

MARTINEZIA CARYOTÆFOLIA. (*B. M.* t. 6854.) Palmæ. S. A graceful Palm, with a ringed and spiny stem, a little swollen at the base. L. 4.5 ft. long, pinnate with a spiny rachis, leaflets 9-12 in. long, 3-4 in. broad, cuneate, truncately 3-lobed at apex, with smaller lobules, and denticulate. Spadix loosely branched; fl. scattered, small, greenish. Columbia.

MASDEVALLIA HARRYANA, var. *ARMENIACA.* (*W. O. A.*, pl. 224.) Orchideæ. A handsome variety, with rich deep apricot-coloured fl., veined with flame-red, and having a yellow mouth to the tube. Columbia.

MASDEVALLIA HIEROGLYPHICA. (*G. C.* xxiv., p. 584.) A charming

species much in the way of *M. Arminii*, but distinct in its triangular sepals, with longer tails. The fl. are purple, with darker lines and spots on the dorsal sep., and the lower part of the tails are orange-coloured.

MASDEVALLIA LINDENI, var. *GRANDIFLORA.* (*L.*, pl. 34.) A fine large-flowered form, with rich rose-purple fl. Columbia.

MASDEVALLIA ROEHLII, var. *RUBRA.* (*W. O. A.*, pl. 243.) A fine var., with large fl. of a creamy-yellow, transversely mottled with dark chocolate-red inside, and with chocolate tails 3-4 in. long. Columbia.

MASDEVALLIA SENILIS. (*G. C.* xxiv., p. 489.) One of the *Chiracera* group, with comparatively small flowers of a reddish-brown colour, covered inside with short yellow hairs, the pet. are white, with mauve-brown spots, and the lip is pale purple and white.

MASDEVALLIA STRIATELLA. (*G. C.* xxvi., p. 103.) A pretty, small flowered species, in the way of *M. chloracea*, it has a closed white perianth striped with cinnamon, and going off into three short tails; the pet. are lanceolate with an angle on the lower side, white, with a brown mid line; lip lanceolate acute angular at the base, white with the base and apex yellow and having three purple nerves. The l. is about 5 in. long, rather thick, cuneate-oblong, blunt.

MAXILLARIA ENDRESII. (*G. C.* xxv., p. 680.) Orchideæ. Something in the way of *M. setigera*, with very broad elliptical bulbs. L. cuneate-ligulate, blunt-acute. Peduncle rather short. Sep. and pet. triangular-ligulate, acuminate, aristate, light ochreous. Lip ochre-coloured, with a yellow disk, and purple border and veins on the side lobes; callus triangular, depressed.

MAXILLARIA LEHMANNI. (*G. C.* xxv., p. 648.) A fine showy species, with white fl., the lip has the side lobes light reddish-brown inside, and covered with fragile hairs; pale ochre outside with dark chestnut veins; the front lobe is triangular, wavy, and sulphur-coloured.

MICROPHENIX SAHUTI. (*R. H.* 1885, p. 513, f. 91.) Palmæ. H. A hybrid between *Microphoenix decipiens* and *Trachycarpus excelsa*, having the habit and foliage of the former, with the violet tinted petioles and fruit of the latter. The fruits are about ¾ in. long, ellipsoidal, with rounded angles, and of a reddish-brown colour. Garden hybrid.

MICROSTYLIS BELLA. (*G. C.* xxv., p. 9; *Ill. H.*, pl. 581; *Cat. G. C. d'Hort.*, p. 4.) Orchideæ. A very large species, nearly 2 ft. high, with very large cuneate-oblong undulate l., and a raceme of numerous pale purple fl., the sep. being tipped with green; the lip has long sagittate ears, and nine small teeth at the top. Sunda Isles.

MILTONIA PEETERSIANA. (*G. C.* xxvi., p. 326.) Orchideæ. A handsome plant, with the bulb and leaf of *M. Clowesii*, and fl. like that of *M. spectabilis*, var. *Moreliana*; but the sep. and pet. are narrower, more acute, and of a fine brown-purple colour; the lip is narrower at the base and dilated suddenly and acutely at the tip; it is of a rich purple colour, with five unequal yellow keels at the base, and numerous dark purple pale-edged blotches occupy the base and inside line of the disk.

Var. CONCOLOR. (*G. C.* xxvi., p. 360.) This is a distinct and beautiful variety, with purer sep. and pet., and without the dark eye-spots on the lip.

MINULUS MOHAVENSIS. (*Gfl.* 1886, p. 99.) Scrophulariaceæ. H. A pretty little annual 2-3 in. high, minutely viscid-pubescent. L. oblong-lanceolate acute, entire, reddish. Calyx tube ½ in. long. Corolla with a stout tube scarcely longer than the calyx, and a very spreading limb ½ in. in diam., whitish, with a dark crimson eye. California.

MORMODES DAYANUM. (*G. C.* xxiv., p. 552.) Orchideæ. A distinct plant, with ochreous sep. and pet. marked inside with red lines, and a white lip with very revolute margins.

MORMODES LUXATUM, var. *PURPURATUM.* (*G. C.* xxvi., p. 39.) A distinct variety, with light mauve-purple fl., with dark purple lines and spots on the sep. and pet., and the side lobes of the lip much darker than the central part.

MUSCARI HELDREICHII. (*Gfl.* t. 1199, f. A.) Liliaceæ. H. bulb, with 3-4 long, broadly linear channelled obtuse green l., and conical dense racemes of bright blue globose fl., with a whitish 5-toothed mouth. Greece.

MUSCARI SZOVITSIANUM. (*B. M.* t. 6855.) H. bulb, intermediate between *M. botryoides* and *M. racemosum*. L. 6-9 in. long, linear, channelled down the rather glaucous face. Fl. deep bright blue, with a white mouth, arranged in a dense conical raceme. Perianth obovoid, one-fifth to one-sixth in. long, constricted at the throat. Persia, Caucasus.

MYOSOTIS DISSITIFLORA, var. *GRANDIFLORA.* (*Gfl.* 1886, p. 119.) Boraginæ. H. A superior variety, having its fl. double the size of those of the ordinary form, and produced in great profusion in February. Garden variety.

MYRMECODIA BECCARII. (*B. M.* t. 6883.) Rubiaceæ. S. A very singular and interesting plant, inhabited by ants, who make their nest in the large irregular tuberosus bole which is covered with spine-bearing tubercles. From the bole arise short stout spiny stems, with oblanceolate fleshy l., and small white fl. seated in depressions of the stem. Tropical Australia.

NEGELIA ACHIMENOIDES. (*Gfl.* 1885, p. 243.) Gesneraceæ. S. A pretty hybrid between *Nægelia zebrina* and *Achimenes gloxiniaeflora*, with the habit of *N. zebrina*, but the fl. hang from the axils of the l. as in *Achimenes*. Fl. 2 in. long by 1½ in. broad, the tube is yellowish-rose outside, and yellow inside dotted with rose, the lobes are light rose coloured. Garden hybrid.

NAPOLEONA CUSPIDATA. (*G. C.* xxv., p. 659 and 657, f. 147, B.) Myrtaceæ. S. An ornamental shr. of interesting character, differing from the better known *N. imperialis* in its very much larger l., 8-10 in. long, 4-5 in. broad, and larger fl. which are regularly 5-angled, with straight sides, not 5-lobed as in *N. imperialis*, they are cream-coloured with a crimson centre.

NAREISSUS BARRI. (*G. C.* xxv., p. 648.) Amaryllidaceæ. H. bulb. L. linear, twisted, glaucous, a ft. long, ¼ in. broad. Peduncle 1-flowered, 2-edged. Fl. horizontal or ascending; tube 1 in. long, limb pale sulphur-yellow, spreading, segments 1½ in. long, ¾ in. broad, slightly imbricated; corona one-third in. long, lemon yellow below, orange-yellow at the throat, plicate and crenulate. Garden variety.

N. BURBIDGEI. (*G. C.* xxv., p. 648.) H. bulb. L. linear, glaucous, twisted, a ft. long, one-third to half in. broad. Peduncle and fl. as in *N. Barrii*. Tube 1 in. long; limb white, spreading, segments oblanceolate-oblong; cuspidate 1½ in. long, ½ in. broad, not imbricated; corona one-sixth in. long, plicate, yellow, with a crenulate bright red edge. Garden variety.

NARCISSUS JUNCIFOLIO-MUTICUS. (*G. C.* xxv., p. 648.) *H. bulb.* A probable hybrid between *N. juncifolius* and *N. pseudo-Narcissus* var. *muticus*, with narrow, linear, channelled l., and a slender terete peduncle, bearing three fl. The two upper fl. ascending, lower one horizontal. Fl.-tube greenish-yellow, five-eighths in. long; the expanded limb horizontal, bright lemon-yellow, $1\frac{1}{2}$ in. in diam., segments ovate-oblong, much imbricated; corona obconic, $\frac{1}{2}$ in. long, orange-yellow.

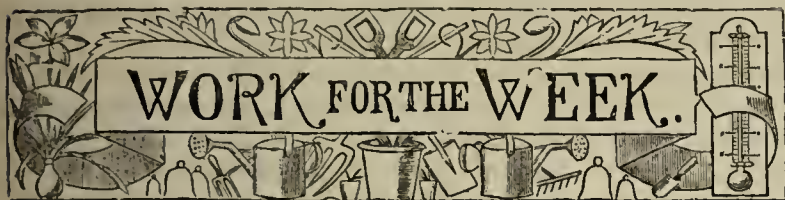
NARCISSUS LEEDSI. (*G. C.* xxv., p. 648.) *H. bulb.* L. linear, twisted, glaucous, a ft. long, 4 lin. broad. Peduncle 1-flowered, 2-edg d. Fl. horizontal; tube $\frac{3}{4}$ in. long, greenish; limb milk-white, spreading, segments ob lanceolate oblong, cuspidate, 1- $1\frac{1}{4}$ in. long, $\frac{3}{4}$ in. broad, not imbricated; corona $\frac{1}{2}$ in. long, pale sulphur-yellow, plicate and crenulate. Garden variety.

NEPENTHES AMABILIS. (*Williams' Cat.*, p. 26.) *Nepenthaceæ.* *S. per.* A hybrid between *N. Hookeri* and *N. Rafflesiana*, most resembling the former. The plant is of good habit, and freely produces its pitchers which are beautifully mottled with dark crimson. Garden hybrid.

NEPENTHES FINDLAYANA. (*Williams' Cat.*, p. 25, and p. 21 with fig.) *S. per.* A pleasing variety, producing a profusion of medium-sized pitchers, mottled with reddish-crimson on a pale green ground. Garden hybrid.

NERINE FLEXUOSA, var. ANGUSTIFOLIA. (*G. C.* xxiv., p. 779.) *Amaryllidaceæ.* *G. bulb.* A very distinct plant, with linear l. one-eighth to one-sixth in. broad, pubescent pedicels, and pink fl. *S. Africa.*

(To be continued.)



THE HARDY FRUIT GARDEN.

Frost and the Fruit Blossom.—The severe frosts recently experienced will have greatly injured much of the Apricot blossom, this being especially the case in the western counties of England. In later localities none of the fruit buds were sufficiently advanced to be injured, and it is to be hoped we may yet have a good fruit year. Not only is it advisable to protect the Apricot and Peach blossom with either coping, blinds, netting, or branches of Fir, but the most valuable of the Pears on the walls may also be similarly treated with advantage. In most instances there is an abundance of fine plump buds, and a very little trouble taken now may be the means of insuring many dishes of good dessert fruit. Not till the flowers are unfolding should they be protected, heavy material being liable to render them weakly. It is when the flowers are damp that they are most liable to injury by frosts, and for this reason we prefer cotton or canvas blinds to doubled fish netting, the former materials being capable of warding off a good shower of rain. A few long poles let into the border at about 3 feet from the wall, and fixed under the coping, will serve to support the blinds, and these may be from 3 to 4 feet wide. All that is needed is something to check the radiation of heat from the wall, and to lightly screen the trees. Small pyramids are frequently the first to suffer from the effects of a late frost. If a few strong stakes are disposed so as to meet well above the trees the latter may at any time be quickly covered with mats, blinds, brown paper, or even branches of evergreens, and the crop saved. These heavy protecting materials ought not to remain over the trees in the daytime, weakened bloom being the most susceptible of injury. Plums and Cherries against walls are frequently much injured by frosts, and the choicer sorts especially will repay for any little trouble taken to protect the flowers.

Roots of Forest Trees.—Screens, in the shape of a belt of trees, do good service when judiciously arranged near to a kitchen garden, but when forest trees, notably the Elm, Ash, and Beech, are principally employed, the roots soon make their presence felt in the fruit borders. It is really surprising to note how far the roots of such trees will travel, the Elm perhaps being the greatest enemy to the garden. A heap of good turfy loam disposed at a distance of 60 feet from a tree was recently found completely ruined by Elm roots, these hungry foragers ramifying thickly throughout the heap. An ordinary wall will not keep them out of a garden, and even if they could not penetrate these they come up from under the foundations. A single tree is capable of exhausting a long fruit border of the greater portion of its fertility, hence the necessity for preventive measures. We have tried several plans for checking the spread of the roots, none of which is long effective. The greatest offenders ought really to be cut down, but if the owners object to this, the next best thing is to cut a deep trench at any convenient position outside the walls, or where it may be done without severing the larger roots. The depth of the trench must depend upon the habit of the roots, the aim being to find all that run in the direction of the garden. Where possible, it is advisable to leave the trench open, but if this is objectionable it should be filled with clinkers or cinders. The roots will pass through these in time, even if gas lime has been freely mixed with them, and when this is found to be the case another opening will be necessary. Spruce, Larch, and Balm of Gilead Firs are of quick growth, and a good belt of these will afford the requisite shelter without giving any cause to complain as regards their root growth. A hedge of common Yew or Holly affords a capital screen for a frame ground or a small plot of ground, the more vigorous Firs being required

for breaking the force of winds that otherwise would do much harm in a large garden.

FRUIT FORCING.

MELONS.—The earliest plants have set fruits on the first laterals. During the setting period water should only be given to prevent flagging, and the atmosphere should be kept drier, with an increase of temperature of about 5°, a circulation of warm air being conducive to a good set. Fertilise the blossoms every day, pinching out the points of the shoot one or two joints beyond the fruit. When the fruits are set and about the size of a Walnut give a thorough watering; in a day or two earth up with rich, turfy, rather strong loam, previously warmed, pressing it down rather firmly, and again supply water. Stop the subsequent growth to one or two joints, removing superfluous growths. If the bottom heat be increased 5°, or to 85°, it will assist the swelling of the fruit, the night temperature 70°, and 75° in the day by artificial means, ventilating from that point, increasing to 85° or 90°, and closing at 85° sufficiently early to run up to 90° or 95° or 100°. Syringe moderately at 3 P.M. on bright warm afternoons; damp in the morning, and keep the evaporation troughs regularly filled with liquid manure. Failing the evaporation troughs, sprinkle available surfaces in the house with liquid manure before nightfall. Plants in restricted borders should have liquid manure, always in advance of the temperature of the house, and a mulching of rather lumpy manure on the surface.

Train the growths of later plants regularly, removing at least every alternate lateral, rubbing them off directly they are perceived, the remainder being left at the right and left sides of the main stem, pinching out the latter or primary stem after it has extended two-thirds of the required distance, and increasing the supply of moisture both at the roots and atmosphere as the days lengthen. In pots and frames a bottom heat of 80° should be secured to plants that are growing freely; in newly made beds the bottom heat should be about 90°. Renew the linings as required, and employ thick night coverings.

Cucumbers.—The season so far has been a trying one for Cucumbers, but we may shortly expect plenty of sun, and it is probable the foliage will flag under its influence, an evil which may be obviated by shading with some light material for a couple of hours at mid-day when the sun is brightest. Assist plants in full bearing with frequent applications of weak liquid manure, and earth up the roots occasionally. Care must, however, be taken not to apply the horse droppings too abundantly and too often, or it will injure the foliage. Plants in bearing for any length of time should have the old exhausted soil removed with a small fork, not injuring the roots, and replacing it with good rich lumpy compost previously warmed. Thin out the exhausted growths, and encourage fresh bearing shoots. Expel worms with lime or soot water, a peek to 30 gallons of water, stirred well up, letting it stand forty-eight hours, then watering with the clear liquid. Subdue canker at the collar and in the old growths by rubbing quicklime into the affected parts. Damp the floor at about seven o'clock in the morning, and again in the afternoon at three o'clock, syringing the foliage gently on warm afternoons, and keep the evaporation troughs regularly charged with liquid manure. Stopping and training must be attended to at least once a week. Maintain a night temperature of 70°, 75° by day, 80° to 85° from sun, and close sufficiently early to run up to 90°, or even 100°, with abundance of atmospheric moisture. Ventilate moderately and early, avoiding sudden changes of temperature, and above all currents of cold air, which cripple the foliage and cause the young fruit to become deformed and to swell irregularly.

Keep a good degree of heat in pits and frames by the renewal or application of good linings. Train the growths rather thinly, pegging them down as required, stopping one joint beyond the show of fruit. Add fresh warmed soil to the ridges or hillocks as the roots extend. Be moderate in the application of water, as the nights are as yet cold, and employ thick night coverings. Admit a little air early, so as to get a change of air and the foliage fairly dry before the sun acts powerfully upon it, keeping through the day at 80° to 85° from sun, and close early in the afternoon, no harm accruing if the temperature rise to 90° or 95° and more, only there is no rank steam, which must be carefully guarded against, having a little ventilation constantly in case danger be apprehended from it.

FIGS.—Earliest Forced Trees in Pots.—The fruit of such varieties as Early Prolific and Early Violet will soon be showing signs of ripening, upon which syringing must cease and a lessened supply of water given, or the fruit will be insipid; but keep those swelling the fruit well supplied with water until ripening commences, when a circulation of warm air will be necessary to secure well-ripened high quality fruit. The temperature should be 60° to 65° at night, 70° to 75° by day from fire heat, 80° to 85° with sun, advancing 5° to 10° after closing, admitting air or increasing it from 75°, closing at 80° to 85°.

Feeding.—No other fruit tree produces surface roots so abundantly as the Fig, if measures be taken to encourage them by means of a mulch of 3 inches thickness of partially decayed manure given when the trees are fairly in growth. This, if kept in a moist state, will be full of active feeders by the time the trees need the most support in order to perfect the crop. It is astonishing what heavy crops Fig trees will carry, only they have not a large rooting space, a calcareous soil, thorough drainage, mulching to encourage and keep the roots active at the surface, and all the light possible. They will take and appropriate most any amount of liquid manure, therefore afford it liberally to trees swelling their crops. Trees in pots will of course require it more frequently than planted out trees, especially where reversed turves have been placed over the rims of

the pots to encourage surface rooting and increase the number of feeders for absorbing the stimulants applied in liquid form.

PLANT HOUSES.

Achimenes.—The best means of producing even specimens of these plants, in pots, pans, or baskets for various forms of decoration, is to strike cuttings in the pots, &c., in which they are to be grown and flowered. Tubers started some time ago will now be sufficiently grown to yield a good supply of cuttings. These should be taken above the lowest joint of the parent, which in due time will break again freely into growth; two or three shoots will be produced in place of the one removed. It is immaterial about the tops being cut just below a joint, as is general in making cuttings, for *Achimenes* root freely from the stem, and the tops may be inserted as they are taken without dressing. The pots or pans should be filled within half an inch of the rim with fibry loam, one-third leaf mould, one-seventh of decayed manure, and a liberal dash of sand, a good layer of sand being placed on the surface. Insert the cuttings as thickly as possible without crowding them. A good watering may be given, and the pots placed in the propagating frame or in a shady position in the Cucumber or Melon house. They will root more quickly in the first position, but a close frame is not absolutely necessary. Plants raised by this means do not become so tall before they commence flowering as when the tubers with growth attached are transplanted. When required for baskets they may be rooted thickly together in pans filled with sand, and from these transplanted into baskets. Our stock plants are topped several times—in fact, until the necessary stock for the season has been raised, when they are allowed to grow. These come in well for late flowering, and are reserved again for stock. All the plants raised from cuttings are conveyed to the rubbish heap as they cease flowering.

Gardenias.—Young plants rooted last September and wintered in 3-inch pots may now be transferred into 5 or 6-inch pots. Pinch the shoots from time to time as they extend until six or eight have been formed, when they may be allowed to grow until they are 6 inches in length, when they may be stopped and tied out towards the rim of the pots. This will induce the formation of suckers from the base, which must be encouraged if large well furnished plants are required by autumn. If grown in moist brisk heat and placed in 8-inch pots when ready there is no difficulty in producing specimens 2 feet in diameter by the time they are a year old. Those who have not plants in this condition may select healthy growing shoots and insert them singly in small pots in sandy soil, or three or four may be inserted in the same pot and grown together. Divide flowering plants into two or three batches, so that the supply of bloom may be prolonged as much as possible. The earliest plants may be pushed forward in brisk heat, while the latest must not be starved by keeping them in a lower temperature than 55°. If starved the flower buds invariably are deformed. A little artificial manure may be applied to the surface of the soil, or feeding with liquid may be resorted to, but it must be used in a weak state, or more harm than good may be done.

Tabernaemontanas.—Where buttonholes, wreaths, and bouquets are in demand few plants are more serviceable than the double forms of this plant. A lengthened supply of bloom may be had by a system of pushing some plants forward while others are retarded. Two or three large plants are invaluable, but where room is limited and small ones only can be accommodated grow them on the same as advised for *Gardenias*; the same treatment suits them exactly. Plants that have become bare at the base may be cut hard back, and in the space of a season they will make well furnished handsome specimens again. After cut-back plants have broken well into growth they may be turned out of their pots, the roots reduced, and repotted again in a smaller size. They will bear this without the slightest injury; in fact, will be benefited by having fresh compost. They can be repotted as growth extends. Young growing shoots root as freely as those of *Gardenias*, and will make hushy flowering plants in 5-inch pots in a year.

Francisceas.—Few plants are more beautiful in the stove, for their soft blue and deep violet coloured blossoms are most conspicuous amongst others. Small hushy plants suitable for home decoration can be grown and flowered as profusely as those of a larger size. Propagation is readily effected by cuttings of the young wood, which should be inserted in sandy soil and covered with a bellglass, or plunged in the propagating box, where gentle bottom heat can be given. When rooted the young plant must be induced to branch by pinching, which must be practised until a dwarf bushy little plant has been produced, when the shoots may be allowed to extend and bloom. While growing give abundance of light, especially during the time the growth is being formed from which flowers are required. *Francisceas* delight in heat and moisture during the growing season, and while making their growth should be syringed at least twice daily. When a number of plants are grown together, and a portion of them are required for successional purposes, this can be accomplished by retarding them in a lower temperature. These plants are of a very accommodating nature, and can be had in bloom for a considerable portion of the year; in fact the period can be regulated by a judicious system of pinching and pushing the plants again into fresh growth. Plants that have enjoyed a good period of rest may be pruned well back and pushed again into growth in brisk heat. If well furnished with branches their shoots can be allowed to extend until they come into flower, but if the plants are thin pinch the shoots two or three times after a few inches of growth has been made until they are well furnished. These plants do well in loam, leaf mould, and sand, but good peat and sand is preferable.

Sphaerogyne latifolia.—Plants that have become too tall for ordinary ornamental purposes may have the leading growth removed from between the last pair of leaves made. This will induce the formation of side shoots, which, when large enough, should be taken off and rooted in sandy soil in brisk heat in the propagating frame. *Cyanophyllum magnificum* may be subjected to the same treatment.

THE BEE-KEEPER.

PRACTICAL BEE-KEEPING.

No. 7.

It is now necessary to point out the best method of obtaining the bees with which to stock our hives. In bee-keeping a good beginning is very conducive to a good ending, and I am therefore most anxious to assist all who desire this year to become bee-keepers to obtain either a good stock or a good swarm. It may be noticed that a swarm is the surplus population of a stock; a stock is a swarm which has become established in its hive. There are three principal ways in which a bee-keeper may attain the desired object. These are:—1, By purchasing a swarm; 2, By purchasing a stock; 3, By feeding driven bees into a stock. Of these in their order. A swarm must only be bought under the following conditions:—1, That it is delivered before the 15th of June; 2, That it weighs at least 4 lbs.; 3, That the queen at the head is only in her second year. An early swarm is valuable, and the price will therefore be comparatively high. A swarm fulfilling the three conditions above laid down will cost at least 25s., often more. Such a swarm is, however, cheaper at that price than a smaller or later one at a much less sum. Who does not remember an old saying once often heard in agricultural districts?—

"A swarm in May is worth a load of hay;
A swarm in June is worth a silver spoon;
A swarm in July isn't worth a butterfly."

Unless the man who desires to purchase a swarm such as we have attempted to describe knows some local bee-keeper in whose honesty and judgment he can implicitly trust, it is better to buy the swarm from one of the great dealers, who will supply exactly what is required, at an increase of price perhaps, but without the risk otherwise incurred by one who, knowing nothing himself about bees, has to trust to another who may be equally ignorant but less ready to confess it. The advantage of stipulating for a young queen in the prime of life and vigour is quite manifest, but it may be remarked that when a May swarm is purchased from an ordinary bee-keeper the queen is quite as likely as not to be in her third or even fourth season. And why? Because the stock from which such a swarm issues or is taken was probably itself an early swarm of the preceding year, and therefore headed by a queen of at least the year before. Now it has been for many years, and still is, a very common custom to take up old stocks from which swarms have issued, and to leave the first swarms to form the stocks for the succeeding year. This habit largely prevails even in apiaries managed upon new principles not thoroughly carried out.

I do not advise anyone to commence bee-keeping by the purchase of a swarm, for it is, I believe, needlessly expensive without any corresponding advantage for the increased outlay. For the price given for a swarm a stock can be purchased in March, and in the stock we buy the swarm; we may, therefore, pass on to the second means of starting our apiary.

Stocks, combs, and bees together may be purchased either in autumn or in spring. In autumn they are less expensive than at any other time; in spring they are more valuable. In purchasing a stock in autumn the following points need special attention:—1, The queen must be in her first year. 2, The comb must be regularly built and new. 3, The less drone cells there are the better.

The strength of the stock and the amount of food it contains is not so material in autumn as in spring. By adding driven bees and giving a supply of food according to instructions which will be given in due course these defects may be easily remedied. I do not mean to say that a wretchedly poor stock should be purchased, but if the stock fulfils the three above conditions the purchase may be concluded, but bees and food must afterwards be added. The stronger a stock is, and the more honey its combs contain, the greater is its value and cost. However, if for a first venture the bee-keeper prefers to purchase a stock ready in all respects for wintering, the two following points must also be regarded as essential in addition to the other three, if the stock is purchased in the early autumn—4, The hive must contain at least 25 lbs. of honey. 5, The bees must cover at least nine standard frames.

If a stock is to be bought in spring all these five points must be observed, modified only in that 12 lbs. of honey will be sufficient for a stock to contain on the 1st of March, and if there are four or five large clusters of bees, each cluster divided by a comb, the stock is in good condition. Such a stock in the early part of March is worth from 25s. to 30s. Again I would advise a resort to a first-class dealer rather than to a friend possessing but little practical knowledge of bees and bee-keeping. The third plan, and as I think the most preferable one, is to feed driven bees into stocks in early autumn. Such stocks winter well, and from them early swarms will issue unless the bee-keeper prefers to keep all the bees at work in supers. The cost of a sugar-fed stock is never more than £1, and in districts where there is a surplus of driven bees often very much less. This expenditure consists of the following items:—

	£	s.	d.
30 lbs. of sugar at 3d. ...	0	7	6
10 lbs. of bees at 1s. 3d. ...	0	12	6
	£1	0	0

A stock so formed is not expensive, and success in the future is ensured. The most timid man may thus build up a stock, and no particular knowledge or judgment is necessary. It may be done by "rule of thumb." The sugar must be made into a syrup, according to a recipe which will be given in a future issue, and supplied to the stock at the rate of about 6 lbs. a day. If foundation is used we might, if we adopted the statement that 20 lbs. of honey is required to produce 1 lb. of wax, knock off 20 lbs. of syrup at least, or a quantity in proportion to every pound or portion of a pound of foundation used in the hive. Such an idea must not be carried out, but if 1 lb. of foundation is used 25 lbs. of sugar will be sufficient instead of 30 lbs., and so in proportion to the weight of foundation used. In those cases where bee-keepers obtain their driven bees by "driving" or "bumping" cottagers' skeps, a sugar-fed stock will only cost 12s. 6d., but in every case an addition to the cost must be made in respect of trouble and time expended in feeding up such stocks. If, again, stocks are purchased, there will be an equal charge in most cases for "carriage," so that

this additional expense does not give a great advantage to either means of starting the apiary. For certainty, safety, and economy I recommend those who have not done so in the past to try next autumn to build up a sugar-fed stock, and if they carry out the instructions here and in a former issue given upon this point, they will have reason to be glad that they made the attempt, and will probably repeat the effort in the future when they desire either to increase the number of their stocks or to renew old worn-out comb.—FELIX.

APIARIAN NOTES.

SPRING FEEDING—HIVES.

To all hives likely to be short of food I have given syrup, some of them have taken 4 lbs. in twenty-four hours. I will give them at least 6 lbs., which with that and what they have will tide them over till the fruit blossoms yield both honey and pollen to meet the wants of the bees and the wishes of the bee-master.

This is the proper season to investigate both properties and defects of hives, taking a note of both, extending the former and remedying the latter. Of these, in my own apiary, I observe one hive, but one only, having more dead bees than I care to see. The cause of this is, I observe, a sliding shutter in the floor warped so as to admit a current of cold air. With this exception all the rest of my hives have few dead bees, ranging from about two dozen to a hundred or two. Single-cased hives covered with straw, and the sides with cloth or felt, and a sheet of galvanised iron over all, are perfectly free from damp, and the bees are healthy, having fewer dead bees than any other hive. The only other defects in the whole apiary are one or two of the double-cased hives bare of paint, through which the damp has crept and spread to a distance. This will be remedied the first opportunity after the weather becomes dry, painting both inside and outside, so far as that can be done. A sun-cracked board of an outside case will also be removed, as, like the two double-cased ones, the damp has spread considerably from where the water entered, and a piece of sacking on the top of the hive touching the case, has by capillary attraction become wet, but not to the injury of either bees or hive. Although of a trifling nature in my case, are not always so. Very often, from such little defects, hives have perished by inattention to them at the proper time. Beginners will therefore profit by paying particular attention to have everything that is likely to induce or retain damp in or about a hive removed.

VENTILATING HIVES DURING WINTER.

There is nothing of more importance to the health of the bees than that of removing the moisture from the hive caused by the consumption of food and consequent perspiration by the bees, which during the summer months is expelled from the hive by the entrance, but during the winter months is liable to be condensed on some part of the hive or combs, and not unfrequently causes the destruction of the bees. How to get rid of all this water without unnecessarily exposing the bees to a greater draught than they can bear is what has exercised some of our minds for more than thirty years. Condensers on the top of the hive have been advised, I think by the late Mr. Taylor. "A Renfrewshire Bee-keeper," Mr. Langstroth, and myself went in for porous materials being placed on the crown of the hive and over the openings between the combs, because the spaces between the combs on the top must be open, unless where slides are used narrower than the opening, or thin as in the Stewarton hive, through which if the top is well covered the perspiration passes. Others again prefer enamelled cloth, the use of which must necessarily prevent the escape of any moisture, throwing it back upon the bees to be condensed upon them, or upon anything in the hive of a lower temperature.

The condensing apparatus might work very well if the combs ran at an angle to converge in the centre, but with parallel frames cannot be done without having a condenser to every seam of bees, which would be apt to cause a draught, making the remedy worse than the disease. So far as I have heard or seen, there is nothing to equal our original system of insensible upward ventilation. Since we introduced that system nothing has yet appeared to come near it in effectiveness in preserving the hive in a healthy state, but rather the reverse. But even with insensible upward ventilation, all the vapour does not pass in an upward direction—much of it passes off beneath the bees through the ventilating floor and condenses upon the under floor, ready to rise again in a state of vapour when the temperature rises; but when the bottom is covered with zinc or thoroughly pointed so as to render it non-absorbent, the water runs off, and the bees are not again troubled with it. When the temperature becomes high enough—say to 60°—most of the vapour passes out at the door, but when much

lower than that is condensed before it leaves the hive, causes the combs to decay, and the pollen to be affected by moulds.

The amount of water generated by a strong swarm is much greater than many people believe. I have seen cloths that had lain upon a hive of bees during three months of winter, and covered closely with an almost air-tight cover, weigh nearly 10 lbs. more than they did when put on. After I gave my bees the last feed of syrup in November last, I was laid up, and did not get them removed. The most of them it makes little difference whether they are removed or not, but some of them have a tendency to cause a draught. When I examined them after they had been six weeks on, two of them, tin ones standing over a 3-inch space or opening, each contained 2 ozs. of water. A third one of wood had none: the wood being warmer the perspired air did not condense on it, but was carried beyond it, either at the side or, as the wood was thin at the side, and a little space between the wood and the glass, may have escaped there, as no damp is about that hive, nor any of the other two, as with the exception of the feeder all the rest of the top of the hive, as well as the floors, were prepared, so that no moisture would find a lurking place, nor anything that would cause a draught.

I observe the advice is often given to place a cake of candy on the top of the frames and the quilt over all. Bee-keepers will do well not to follow that example, as it causes a draught and makes the bees restless. Space below does not injure, but above it does. The foregoing is intended principally for the beginner, and if he becomes impressed with the facts, and acts judiciously, many of the calamities attending bees will never be known in his apiary.—A LANARKSHIRE BEE-KEEPER.

THE HONEY MARKET.

JUDGING from the letters of my critics it is perfectly clear that we have not studied the same books, either in writing English or keeping accounts. I am quite willing to admit that the comma which has slipped in between "honey" and "which is only honey," &c., warrants the imputation that I accused the Canadian honey of being only honey in name, but if they had taken the trouble to read on further they must have seen that such an imputation was unwarranted, or how can they reconcile their interpretation with the fact that I distinctly stated that there was no vice in the Canadian honey? No one could say this of honey that was not honey—that is to say, adulterated. Moreover, no one would be rash enough to brand any foreign honey with such a wholesale condemnation. It is well known that a large quantity of honey labelled "Californian" is nothing but glucose; still, he would be a bold man who would say that *all* Californian honey was glucose. So the whole accusation of my lacking courage to fight the Canadian bee-keepers face to face falls to the ground, for the very good reason that I have made no complaint of the genuineness of their honey.

Then with regard to accounts. I thought the traditional schoolboy knew what gross profit meant, and the difference between it and nett profit. The former, of course, is the usual term to express the excess of what was received over and above the price at which it was bought, while the nett profit is the gross profit less the working expenses. In the case of the Honey Company the gross profit was £100, but the working expenses (cost of starting the Company, rent, wages, advertising, &c.) being £600, there was a loss of £500. Then, again, "A. H. B." says we made 15 per cent. We made, on the contrary, nearly 17 per cent., as the profit was one-sixth, not one-seventh.

"Turnover" seems to be strange to "A. H. B." He need not be puzzled or accuse the printers of having erred. We bought £1000 worth of honey, but only sold £600, leaving a stock of £400, and this latter sum of course is not included in the turnover for the very simple reason that it was not turned over, but remained in stock on the 31st December, 1885. "A. H. B." cordially invites me to join the Bee-Keepers' Union and write to Mr. J. Hewitt of Sheffield. This I decline to do, and I am not at liberty to explain my reasons for not accepting the invitation; but they are known to the Editor.

It is not a fact that the Honey Company only buys the finest samples. We bought £200 worth of honey, which was taken from skeps, but there is little or no demand for it, and a large quantity still remains on hand. The same thing happened with some Heather honey that we bought. Our traveller could not sell it, as the grocers would only take the light honey except in certain places where there was a demand for the cheaper kinds. We have at least five different qualities of run honey, and as some of these are dark in colour (red Clover for instance) I fail to see how we can be accused of only buying the finest samples.

It is not the slightest use our trying to push the strong flavoured honey if the grocers will not take it, and we cannot afford to throw away our shareholders' money.

It is not correct that there was nearly eleven months' delay in presenting our first balance sheet, as it was sent out early in October. The reasons why there was this delay proved quite satisfactory to our shareholders, and I fail to see what ground non-shareholders have to complain.

In conclusion, I have to apologise to "Felix" for having accused him of praising to the skies the Bee and Fruit Farming Company. I only stated what I thought was the fact, but I see on referring to the

Journal of January 29th, 1885, that there is no signature to the short notice of that Company.—GEO. WALKER, Wimbledon.

TRADE CATALOGUES RECEIVED.

Harrison & Sons, Leicester.—*Annual Catalogue of Farm Seeds*, 1887.
John Laing & Co., Forest Hill, S.E.—*Price List of Clovers, Grasses, and other Agricultural Seeds*, 1887.



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

LATE INQUIRIES.—It is necessary to again remind correspondents that letters arriving on **WEDNESDAY MORNING** cannot be answered in the "next issue," which is then far advanced for press.

Books (Botanist).—Your question is a very indefinite one and difficult to answer without further explanation. If you require a dictionary of the same style as Paxton's or Johnson's you will not get them for the price named, but dictionaries of botanical terms can be procured for a few shillings.

Cacti (D.G.).—Write to Fred. Adolph Haage, jun., Erfurt, Prussia, for a catalogue of the plants named.

An Unnamed Orchid (R. P. O.).—We cannot recognise the Orchid from the sketch sent, but it is probably either a *Cattleya* or a *Lælia*, and may be grown in a pot in an intermediate temperature.

Fumigating (T. F. W.).—We have seen the apparatus mentioned tried in several houses with satisfactory results, and the firm who is advertising it have employed it in all their houses without the slightest injury to either Ferns or Orchids. Of course it should be used carefully, and especially at first, until you become accustomed to it.

Small Rhubarb (J. F.).—In all probability larger stalks will follow as the season advances. If there are clusters of small crowns you may cut some of them clean out in order that the strength of the roots will be directed to the larger. It will probably be advisable to split a few of these from the outsides of the stools with roots attached and plant them in rich soil. It may be done now, but no stalks should be pulled from them this season. Doyenné Bonsoch is a fine-looking Pear and good for a very short time only. When once ripe it "goes like magic." The trees may be inarched as you suggest.

Landscape Gardening (A Young Gardener).—We know of no paper that will give you the desired information. The book most likely to suit you is Kemp's "How to Lay Out a Garden," which a bookseller can probably obtain for you. It is published by Messrs. Bradbury & Evans, Bouverie Street, London. We do not remember the price. We are pleased to find the Journal is acceptable and useful to you in Nova Scotia.

Worms in Trees (A. B. G.).—You have done right in clearing away the Ivy, and you have also no doubt scraped off the decayed bark, or you could not have caught so many of the worms. Several may be destroyed by forcing wire into the cavities, and you will do well also to wash the trunk with a solution you can prepare by dissolving a quarter of a pound of soft soap, and half an ounce of soda in a gallon of boiling rain water, stirring very briskly in while hot a pint of petroleum. This may be applied at a temperature of 150°, or so hot that the hand cannot be borne in it for a second. Force it well into all crevices, and it will make short work of all the worms it reaches.

Strawberries Dying (W. F. W.).—Judging from the example you have sent we find it difficult to account for the loss of so many plants. We do not think the plant before us would have died, due judgment being exercised in watering; but at the same time the fruit could not be large, because several of the roots are dead, but others are sufficiently active to sustain the plant though not to induce vigorous growth. There are also signs of gangrene round the stem and at the base of the crowns. The roots may have lost their vitality through being kept too dry at some time anterior to commencing to force; or the evil may have been caused by an overdose of liquid manure. We have known Strawberries injured by liquid manure given too strong, and when it has been roughly poured on the crowns by young men in a hurry the crowns have been damaged, as well as many of the roots destroyed.

Cattleyas (A Beginner).—The brighter weather we are now experiencing will probably induce the growths to start as desired if the plants have sufficient strength. A slightly increased temperature with more moisture at the roots and in the atmosphere will also assist them.

Clematis coccinea (D. C.).—This plant will grow well in a mixture of two-thirds fibry loam, the remaining portion being composed of equal parts of leaf mould, crushed charcoal, and sand, provided good judgment be exercised in watering, without which the best of soil is rendered comparatively effete. As to whether you should repot the plants or not, that depends entirely on its condition. If the present pot is so far filled with roots that a few of them protrude through the drainage, it will be desirable to shift the plant into a pot 2 or 3 inches wider; but if there is space for the roots to extend without shifting, and the soil is at the same time good and kept in good order, the repotting will be better deferred for some time. When it is done take care that neither the old soil nor the new is dry on the one hand or very wet on the other. Pot firmly, and give water as often the soil slightly crumbles when rubbed, and only then, always pouring on sufficient to pass right through the mass. The plant should be placed on a shelf close to the glass of a very light house in which the temperature rarely exceeds 45° by fire heat alone, and a free circulation of air is also requisite for promoting sturdy growths.

Removing Plants (J. H.).—A person who grows trees, plants, and flowers for sale as a means of livelihood—or, in other words, a nurseryman, florist, or market gardener—is entitled to remove them on the expiration of his tenancy, as they are part of his stock in trade; but a person who only grows them for his private use or pleasure has no legal right to dig anything out of the ground that is planted in it; nor has he any claim from a landlord for compensation in respect to the value of what he (the tenant) cannot remove. But while that is the law it is exceedingly rare to find it enforced in the case of removing a few flowers, and most persons would think a landlord acted harshly in prosecuting a tenant for taking away with him a "small collection of herbaceous plants" that he had procured and established. These matters are generally mutually arranged between landlord and tenant; but, at the same time, when there is reason to suppose the legal claim of the former will be exacted, a tenant would be unwise to dig up anything to which may feel himself "morally" entitled to remove. Under the Agricultural Holdings Act we think a tenant can either remove or claim compensation for the value of fruit trees he may have planted with the consent of the landlord given in writing, not otherwise. You can perhaps procure a book that may be of some service to you by writing to Messrs. Macmillan & Co., Bedford Street, Strand, London.

Insects on Mushrooms (J. B.).—If you can examine with a microscope a small cluster of the minute insects that are infesting your Mushrooms you will see a sight that will astonish you, and you will at once determine to destroy every Mushroom that is infested, as probably all of them in the house are more or less seriously. You will find a mass of repulsive crab-like creatures clinging and struggling as if attempting to devour each other. There are thousands of them. They are under examination by an entomologist, and pending his observations we translate the following from Boisduval's *L'Entomologie Horticole*:—"We have remarked, when we have descended into the catacombs or into the quarries occupied by the Mushroom growers, that the Mushroom of the beds, *Agaricus edulis*, was often infested by an Acarus visible to the naked eye, which covered the gills. It is round, of a reddish grey tinted. It is perhaps known to the apterologists, but we have not been able to recognise it in their works; it is, along with a little *Brachelytra* that the Mushroom growers call *Capuchin*, a pest in Mushroom growing." The darker insect is probably a Podura that is preying upon the acarids. We cannot conceive of any means of extirpation short of clearing everything out of the house, filling it with the fumes of sulphur, pouring boiling water into every crevice, and washing the walls with hot limewash. It is only by a vigorous cleansing that the obnoxious and destructive pest can be banished.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (*W.M.*).—*Dendrobium pinnulatum*. (*J. J. S.*).—*Narcissus incomparabilis aurantiacus plenius*, known popularly as "Butter and Eggs." (*E. H.*).—*Lycaste Harri-soniae*. (*J. H. P.*).—1, *Davallia canariensis*; 2, *Polypodium vulgare*; 3, *Sedum Sieboldi*. (*A. H.*).—1, *Polystichum capense*; 2, *Adiantum Capillus-Veneris*; 3, *Lastrea quinqueangula*; 4, *Magnolia fuscata*; 5, *Eleagnus reifera* variegata; 6, *Cibotium Schiedeii*.

Water Fountain for Bees (F. J.).—We supply our bees with water near the apiary, to prevent their being lost in flying to a distance for water, or even when near, if the situation is exposed, as a very little cold chills the bees during the spring months. There are many ways of supplying bees with water. They are especially fond of sipping the moisture oozing from tar barrels, or any oxydising substance, or fermenting material, especially when impregnated with salts of ammonia. All open vessels or sheets of water should be kept so that bees are not caught in them and drowned. Vessels filled with sawdust, moss, or substances of like nature, then filled with water, make capital drinking places; or, worsted, placed so as to be constantly wet through capillary attraction, is also good. Any kind of fountain answers the purpose well. The "Renfrewshire" Crystal Fountain, with grooved delf slab and column, is ornamental and a useful bee fountain, interesting at all times, and in combination with peaseal feeder is doubly so. The latter, when made to fit neatly between the case of windows, and glazed on the top and back, and made slanting to throw off the wet, and so that the sash of the window in sitting-room, when raised a little shuts close, is a very interesting thing for any observer to watch the bees packing the pellets of meal on their thighs. We are not sure of the price of the "Renfrewshire" fountain, but think from 10s., minus the column or pedestal. Messrs. Neighbour & Sons supply them.

COVENT GARDEN MARKET.—MARCH 30TH.

BUSINESS still quiet, and with the holidays at hand will remain so for a week or two. Forced veg tables somewhat higher.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples 1 sieve	2	0 to 5	Melon each	0	0 to 0
" Nova Scotia and			Oranges 100	6	0
Canada, per barrel	10	0	Peaches per doz.	0	0
Cherries 1 sieve	0	0	Pears dozen	1	0
Cobs 100 lb.	60	0	Pine Apples English .. lb.	1	6
Figs dozen	0	0	Plums 1 sieve	1	0
Grapes lb.	4	0	St. Michael Pines .. each	2	0
Lemons case	10	0	Strawberries per lb.	8	0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes dozen	1	0 to 0	Lettuce dozen	1	0 to 1
Asparagus bundle	8	0	Mushrooms punnet	0	6
Beans, Kidney per lb	2	0	Mustard and Cress punnet	0	2
Beet, Red dozen	1	0	Onions bunch	0	3
Broccoli bundle	0	0	Parsley dozen bunches	2	0
Brussels Sprouts .. 1 sieve	2	0	Parsnips dozen	1	0
Cabbage dozen	1	6	Potatoes cwt.	4	0
Capicums 100	1	6	" Kidney cwt.	4	0
Carrots bunch	0	4	Rhubarb bundle	0	2
Cauliflowers dozen	3	0	Salsify bundle	1	0
Celery bundle	1	6	Scorzonera bundle	1	6
Coleworts doz. bunches	2	0	Seakale per basket	1	6
Cucumbers each	0	4	Shallots lb.	0	3
Endive dozen	1	0	Spinach bushel	3	0
Herbs bunch	0	2	Tomatoes lb.	1	0
Leeks bunch	0	3	Turnips bunch	0	4

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi dozen	9	0 to 18	Ferns, in variety .. dozen	4	0 to 18
Arbor vitae (golden) dozen	6	0	Ficus elastica each	1	6
" (common) dozen	6	0	Foliage Plants, var. each	2	0
Azalea per dozen	24	0	Hyacinths per dozen	6	9
Begonias dozen	4	0	Lilies Valley dozen	12	0
Cineraria per dozen	9	0	Marguerite Daisy dozen	6	0
Cyclamen dozen	12	0	Myrtles dozen	6	0
Dracena terminalis, dozen	30	0	Narciss (various) .. dozen	12	0
" viridis dozen	12	0	Palms, in var. each	2	6
Erica, various dozen	9	0	Primula sinensis per doz.	4	0
Euonymus, in var. dozen	6	0	Solanums per doz.	9	0
Evergreens, in var. dozen	6	0	Tulips per doz. pots	6	0

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Abutilons 12 bunches	2	0 to 4	Lily of the Valley, 12 sprays	0	9 to 1
Arms Lilies 12 blooms	4	0	Marguerites 12 bunches	2	0
Azalea 12 sprays	0	6	Mignonette 12 bunches	4	0
Bouvardia per bunch	0	6	Narciss, Paper-white, bunch	0	4
Camellias blooms	1	6	" White English, bunch	1	3
Carnations 12 blooms	1	0	Pelargoniums, per 12 trusses	0	0
" 12 bunches	0	0	" scarlet, 12 trusses	0	6
Chrysanthemums 12 bches.	0	0	Roses 12 bunches	0	0
" 12 blooms	0	0	" (Indoor), per dozen	1	0
Cornflower 12 bunches	0	0	" Tea dozen	2	0
Cyclamen 12 blooms	0	4	" red (French) dozen	2	6
Dahlias 12 bunches	0	0	Parma Violets (French)	6	0
Euphyllium doz. blooms	0	6	Poinsettia 12 blooms	0	0
Eucharis per dozen	4	0	Primula (single) per bunch	0	4
Gardenias 12 blooms	12	0	" (double) per bunch	1	0
Hyacinths, Roman, 12 sprays	1	0	Stocks, various 12 bunches	0	0
" 12 sprays	4	0	Tropaeolum 12 bunches	1	6
Lapageria, white, 12 blooms	2	0	Tuberose 12 blooms	2	0
Lapageria, red .. 12 blooms	1	0	Tulips doz. blooms	0	6
Lilium longiflorum, 12 blms.	0	0	Violets 12 bunches	1	6
Lilac (white), French, bunch	6	0	" Czar, French, per bunch	2	0



PERMANENT PASTURE.

It is with no hope or intention of writing anything novel or particularly uncommon that we sit down to write this article, for the selection of permanent pasture as the subject of our theme this week is really owing to the letter of a correspondent asking for advice about the laying down to permanent pasture of a field of rather poor stiff clay upon the lias formation. The query is so timely and seasonable that the perusal of it at once gave rise to the thought, Why not make the answer to "A. W. E. K." so general, as well as particular, as to render it useful to others also? Our resolve to do so was probably all the more prompt from the fact of our having to lay down some clay land in pasture this spring, and

like our correspondent we intend doing so with a crop of Oats.

We are asked to enumerate the names and quantity of seed of each kind of grass to be used, the quantity of Oats per acre, whether the grass seed and Oats should be sown at the same time, the best manure, and how and when to use it. Our answer shall be given at once. The mixture which we intend using and can recommend for such land consists of 4 lbs. of Foxtail, 8 lbs. Cocksfoot, 4 lbs. Catstail, 4 lbs. Meadow Fescue, 8 lbs. Tall Fescue, 3 lbs. Crested Dogstail, 2 lbs. Rough Meadow Grass, 2 lbs. Hard Fescue, and 1 lb. each of Yarrow, Perennial Red Clover, Cow Grass, Alsike, and White Dutch Clover, or 40 lbs. an acre in all. Of Oats drill 4 bushels an acre, and as the season is so much advanced drill Oats and pasture seeds at the same time. The best and most expeditious way of doing this is to use one of the new American Excelsior drills, by means of which corn and grass seeds and chemical manures can all be sown at the same time and with a single turn of the drill. We do not, however, recommend the use of manure at the time of sowing in this case, but rather prefer waiting till the young plant is well above the surface, and then apply a simple dressing of 1 cwt. per acre of nitrate of soda.

An extra amount of care must be taken in the preparation of the seed bed so as to avoid burying the grass and Clover seed too deep. We must first of all eradicate couch grass and all other perennial weeds, next stir the land deeply, and by means of the cultivator, harrow, and roller, render it so fine that the risk of burying the soil too deep is reduced to a minimum. So important do we know this to be, that rather would we forego having a corn crop at all and sow in May or June than sow in foul or rough land. So favourable, however, has the weather been for cleaning land, that the preparation of the seed bed should prove an easy matter now, and by taking a corn crop we shall have some return upon our outlay this year. Let it not be thought that once down in permanent pasture the land will need little, if any, expenditure of money or labour upon it. Pasture requires careful cultivation quite as much as any other farm crop, and, what is even more important, it repays us for the care bestowed upon it even better than corn does. It is solely from negligence that so much old pasture has such a brown starved appearance at the present time. Drain it, enrich it thoroughly with manure, and the herbage will be fresh and green even at midwinter. The application of manure to it must be no fitful haphazard process, but must be done regularly every year, either by sheep-folding or with chemical manure used in February or March. Of such manure the mild dressing of a cwt. per acre of nitrate of soda is sufficient for the first season, but the following year we use a mixture of $\frac{1}{2}$ cwt. nitrate of potash, $\frac{3}{4}$ cwt. nitrate of soda, $\frac{1}{2}$ cwt. mineral superphosphate, $\frac{1}{2}$ cwt. steamed bone flour, taking care to mix the manure three or four days before applying it to the grass in order that the sulphuric acid of the superphosphate may act sufficiently upon the bone flour to render it soluble and quick in action.

Geological formation has very little influence upon our selection of grasses and Clovers. The five principal varieties of grass suitable for general cultivation, and which should form the bulk of all mixtures, are Cocksfoot (*Dactylis glomerata*), Timothy (*Phleum pratense*), Meadow Foxtail (*Alopecurus pratensis*), Tall Fescue (*Festuca elatior*), and Meadow Fescue (*Festuca pratensis*). Use plenty of these strong-growing grasses, with a fair proportion of Clovers, and with due attention to cultiva-

tion you ought soon to have a flourishing pasture. If you have a seedsman's mixture insist upon the exclusion of Rye grass and buy subject to analysis. Rye grass imparts the aspect of a green vigorous growth to young pasture that is as attractive as it is deceptive, for it fails after a year or two precisely when we ought to have a well-knit pasture. Sown alone or with Cocksfoot and Clover, Rye grass answers admirably in alternate husbandry, giving more bulk per acre of excellent forage than anything else, and we highly commend it for such a purpose.

WORK ON THE HOME FARM.

Good reason have we for satisfaction with our scheme of cropping for the flock. While many farmers are at a loss for food, we have an ample provision to carry us on till midsummer quite independent of pasture. Our first field of Rye is quite ready for use now, but the folding on Swedes will last another fortnight, and then the Rye folding will follow. Ploughing for Barley has followed the Swede folding closely, as we are anxious to get the drilling done as soon as possible. So eager was a neighbour to finish drilling, that he carted the Swedes into heaps upon his Rye for the sheep to consume the roots there. We did not do so for two reasons—we wished to manure the whole of the Swede land by folding for Barley, and we have the clamps of Mangolds, which were made last autumn alongside both Rye and Winter Tares in readiness for the sheep. Our first field of Rye affords a striking illustration of the value of manure for the promotion of a robust and early growth, upon which severe cold had very little effect. Sheep had been folded upon Tares in this field before the Rye, which was sown in this and an adjoining field on the same day. The second field was under Oats before the Rye, for which no manure was used, and it is both weak and slow in growth. A hundredweight per acre of nitrate of soda now would set matters right, but it will not be given, as we shall not want this Rye for several weeks, and it will answer tolerably well as a successional crop. The outlay incurred for chemical manures this spring has been so heavy that we are obliged to curtail expenditure wherever it is possible to do so. Since last harvest we have certainly made a strong effort for a successful season this year. We invested largely in sheep both for folding to fatten and to add to the ewe flocks. The fat sheep have done something more than pay expenses, and we have enriched a considerable area of land by folding. Bullocks are not fattened except for a special purpose. We have some at three farms to consume a certain quantity of roots and Barley straw. A mixture of crushed corn is also given them in order to finish them as soon as possible. Very narrow indeed is the margin of profit upon the fattening of bullocks now even under the most skilful management. Sheep and pigs are profitable, and we shall use more and more of them to the exclusion of bullocks. The ravages of swine fever have made us confine our store of pigs within somewhat narrow limits, but it is our intention to procure many more gradually, as we can do so with safety, by buying them from farms free from disease, and not from dealers.

OUR LETTER BOX.

Grasses for Permanent Pasture (A. W. E. V.).—You will find this subject discussed at some length in our Home Farm article this week. If any further information is required we shall be pleased to afford it.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				
	Barometer at 32° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		Rain.
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1887.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
March.										
Sunday 20	30.128	33.1	32.2	E.	35.0	38.6	29.6	62.1	23.2	—
Monday 21	29.852	32.0	31.6	N.	34.9	40.0	25.6	73.8	22.7	0.032
Tuesday 22	29.419	46.1	43.2	S.W.	34.9	53.6	28.7	98.3	28.7	0.275
Wednesday ... 23	29.070	46.5	43.1	W.	37.2	52.8	42.2	100.4	37.7	—
Thursday ... 24	29.553	41.0	40.7	S.W.	38.0	50.4	35.3	81.2	28.9	0.129
Friday 25	29.637	46.2	42.4	W.	38.3	50.3	36.0	88.1	30.2	0.050
Saturday 26	30.092	45.8	41.9	N.W.	38.9	53.3	39.7	95.3	33.8	0.123
	29.693	42.0	39.3		36.7	48.4	34.0	85.6	29.3	0.015

REMARKS.

- 20th.—Fine and bright.
 21st.—Fine and generally sunshiny, but rather hazy.
 22nd.—Dull early, fine day with a good deal of sun, much warmer, heavy rain 5.15 P.M. to 6 P.M., gale at night.
 23rd.—Heavy rain in small hours, and overcast with gale in morning; bright afternoon, but still stormy.
 24th.—Fine, but cloudy at times in morning; wet afternoon and evening.
 25th.—Bright at times, but gusty and threatening; showery in afternoon.
 26th.—Fine generally, with rain in evening.
 A pleasant spring week, much of the rain falling at night. Temperature about 9° above that of the preceding week, but still below the average.—G. J. SIMONS.



COMING EVENTS

7	TH	Linnæan Society at 8 P.M.
8	F	GOOD FRIDAY.
9	S	
10	SUN	EASTER SUNDAY.
11	M	BANK HOLIDAY.
12	TU	Royal Horticultural Society. Fruit and Floral Committees at 11 A.M.
13	W	

THE WEAK LINK IN FRUIT CULTURE.

THOUGH the biting winds of February were the reverse of agreeable, and the "second winter" in March generally most unwelcome, the protracted term of cold that was experienced during those months may, by arresting vegetation and retarding the blossoming of trees, be the precursor of good crops of fruit. All must hope that such may be the case, but at the same time it will be conceded that late springs are not the certain forerunners of golden harvests. Generally speaking, the later the expansion of blossom the greater is the chance of its escaping destruction, but with the vast majority of trees its preservation is a question of chance after all.

No matter how late the blossoming period, one or two severe frosts may occur when the trees are in beauty and destroy all hope of a bountiful crop of fruit in a night, or even in the absence of frost a "dripping week" at a critical time may equally result in barren orchards. That late blossoming alone is not always a favourable circumstance is evident from the fact that during some years Plums and Pears are abundant and Apples scarce, yet the blossoms of the former are very much earlier than the latter. It is, however, an advantage for the earlier blossoming trees to be late, as in that case not only is the prospect of a good set of fruit better, but the contingency of a subsequent term of cold weather occurring is more remote, and it has not infrequently happened that trees of all descriptions have been denuded of fruit a week or two after the blossoms faded and the setting of the crops accomplished.

There is of necessity a large degree of uncertainty in fruit culture in orchards and gardens where protection cannot be afforded, but at the same time there is a certain amount of "safety in numbers." When the question is asked, as it often is, "What kind of fruit pays the best?" it will usually be safe to answer that no one kind can be absolutely relied on, and to depend on one to the exclusion of others is highly unwise. Amidst all the uncertainty pertaining to the cultivation of fruit, there is at least one reassuring element—while it is very rare to find bountiful crops of every kind of fruit in one season, it is equally rare the whole of them fail. In private gardens mixed collections of fruit are a necessity, hence a due proportion of all kinds are planted. It is equally desirable in growing fruit for commercial purposes that the same practice be adopted. Those who are the most successful do not rely on Apples alone, or Plums, Gooseberries, or any other fruit, but provide against total failure by growing the best of the different kinds that succeed in their soil and district. The importance of acting on this safety

principle is not sufficiently recognised by many persons who are disposed to plant fruit trees more freely, but who lack experience. The greatest obstacle to the production of fruit is the liability of the blossom to be ruined by frost or inclement weather, and by having kinds to expand at different times the greater is the chance of some of them escaping, because it is extremely unlikely that "bad" weather will prevail over the whole term of blossoming.

In the case of established trees in open positions the owner or manager of them is helpless in respect to preserving the blossom. He is at the mercy of the elements, and the trees must take their chance; but in instances innumerable there has been great lack of judgment in the selection of sites for fruit culture. Without a doubt many planters were victims of "no choice;" they were compelled to plant the trees where they stand or not plant at all. But others have had large districts at their disposal, and have chosen sites for orchards and chosen wrongly. They have preferred warm sheltered valleys to more exposed elevations. Warm depressions expedite the blossoming of the trees, and the greater humidity of the air there than at a greater altitude intensifies the destructive action of spring frosts. Mr. R. Parker of Impney recorded a striking example of that some time ago. More than once Apple orchards in sheltered valleys in the south of England have been barren, while trees in positions 300 to 500 feet higher, and 300 miles further north, have been laden with fruit. Both the later blossoming and the drier air on the northern altitudes were favourable, though wet occurring in the south during the blossoming season and not in the north may have exercised an influence.

Another instance can be cited of the advantage of a comparatively high position for fruit culture. Two orchards of Apples chiefly, but including a few Pears and Plums, are within a mile of each other. One is in a valley, the watercourse of the district, the trees being as well sheltered from the north as an orchard can be; the other is about 200 feet higher—the highest land in the district, this orchard being sheltered from the south, exposed to the north and the east. The trees grow and blossom alike freely in both positions, and at the same time, the coldness of the wet soil in the valley perhaps retarding the movement of the sap there, the warmer, because drier, soil on the hill exciting its flow. Either that or something else causes the simultaneous blossoming of the sheltered and exposed trees. Up to that point there is no difference, and the same weather obviously prevails in the locality; but the difference in the two orchards in the autumn is very conspicuous, the higher seldom failing to give tons of fruit, the lower often affording none; or, in other words, while one orchard is profitable four years out of six, the other is unprofitable four years out of five. In the exposed and productive orchard the wood is ripened better than in the lower, and spring frosts blacken the blossom in the latter, while in the higher and drier site it remains uninjured. If, therefore, the blossoms of orchard trees cannot be protected, experience suggests that something can be done where a choice of positions is afforded in selecting a site by which adverse weather influences may be, if not evaded, greatly mitigated, to the decided advantage of the cultivator.

The blossom is at once the most important as well as the weakest link in the chain of fruit culture. Everything that can be done should be done to relieve the strain to which it is subjected. Trees on walls can be protected

where suitable material exists. It is a penny wise and pound foolish policy to purchase open nets for this purpose. They are useful for protecting fruit from birds, but for protecting blossom from frost are delusive. For insuring crops of fruit, such as Peaches on walls, the trees should be covered when protection is needed and only then, and then effectively. The trees being healthy and well managed the plan indicated seldom fails, but no gardener can be fairly held responsible for barren trees when the requisite material for protecting the blossom is not provided.

THE EARLIEST HYBRID FUCHSIA.

I HAVE had by me for some time a memorandum to correct a paragraph at page 318 of last year respecting my early experience in raising Fuchsia hybrids, but have only now found the leisure to do so. As Professor of Botany in the Society, it is my practice to give the meeting an off-hand discourse on the objects exhibited. The local reporter takes down what I say, but as I am reputed to be a rapid speaker, I should be sorry to be responsible for all he makes me say. You have evidently in some way met with this report. As it is a matter of historic interest, I give you the correct facts. In 1840 I was much interested in reading Thomas Andrew Knight's experiments in crossing Peas. I attempted to repeat the experiment. I was then in my fourteenth year. Fuchsia fulgens—not effulgence as the reporter has it—was then blooming for the first time. I applied its pollen to a fine variety of *F. coccinea*, called *F. longiflora*, growing against the wall of a cottage near the seashore at St. Clare, in the Isle of Wight. The plants flowered the year following. One of them was of enormous size, and a flower sent to Dr. Lindley, who had about that time taken charge of the *Gardeners' Chronicle*. The glowing terms in which Dr. Lindley spoke of it produced a correspondence with Youell & Co. of Yarmouth. This was named St. Clare. Although the plant was raised by me, and in my own time, the plants were attended to and cared for in the time of my father's employer, Col. L. V. Harcourt, and my father, with that nice sense of honour which always actuated him, insisted they were not my plants in any way. The stock was therefore sold to Youell & Co., the money to be taken out in plants for the grounds at St. Clare. One pound was, however, given to me for my individual share in the work, and with this I bought "my first frock coat," to which the reporter alluded.

This was undoubtedly the first hybrid Fuchsia from *F. fulgens* as a parent. Youell & Co., however, kept it a long time in order to get up an enormous stock; and I am not sure now but the other early variety, *Standishi*, was put into the trade before it.

I should not think the matter worth correcting, only for having appeared in a channel of permanent record like the *Journal of Horticulture*. It is, in this case, due to history to be set right.—THOMAS MEEHAN, *Philadelphia*.

ASPARAGUS CULTURE—RABBITS.

A VERY seasonable article on Asparagus culture by Mr. Ward appeared on page 229, and as from the present time to the end of April, according to the locality, is a good for making new plantations with one or two year old plants, or sowing seed to produce such, Mr. Ward's remarks come very timely for those who wish to have a good supply of Asparagus.

There can be no question but that it is one of the most important vegetables a gardener or anyone can grow. It comes in at a time, and daily too, when, if the Broccoli have suffered much from bad weather, there are not many good vegetables. My experience of this vegetable has been that it does best on a light rich soil, but as everyone has not that at command, means must be taken to render the soil light and open with plenty of old hotbed materials, coal ashes, ashes from burnt rubbish heaps or old potting soil. A few years ago I had to deal with some rather stiff and cold ground. At the beginning of November a good coat of coal and burnt refuse with a sprinkling of charcoal was wheeled on and spread about. After that a 3-inch coating of decayed leaves and stable manure from old hotbeds was spread on and then dug a foot in depth, mixing it as well as possible, and leaving the surface of the land rough to await the action of the frost. In March it was, agriculturally speaking, in good tilth, and was then marked out as Mr. Ward describes in his second method—that is, into beds about 4 feet wide, with 2 feet alleys between. Then a good 6 inches depth of soil out of the alleys was placed on the beds, so making them appear a foot in height. In this condition they were left

until the young plants (two years old) in the seed beds began to grow, about the second week in April, when two drills 4 inches deep were drawn down each bed about 15 or 18 inches from each other, and the plants with their roots spread out were placed a foot apart in the rows, the fine soil being drawn around them with the hands. As rain fell a day or so after, watering was unnecessary. The beds were kept as free from weeds as possible, and the growth made the first season was good, but still no heads were cut from them the following season; but the second year after—that is, when four years old, the produce was good. The heads were not so large of course as from the first method Mr. Ward describes—that is, putting the plants a yard apart each way, a very good practice if extra large heads are required; but it is one that takes time, for they must be staked and tied, whereas when grown closely together they hold each other up.

I have also had very fair Asparagus from rows a yard apart, sown thinly where to stand permanently, and if I had light well-drained land I should adopt no other system, giving them the usual winter dressing of manure. The principal work, I consider, is in well preparing the soil before sowing the seed. It is an old maxim that well begun is half done. Such rows where forcing is practised are very useful for digging up when five or six years old, and when such is the case a few rows can be sown every season according to the requirements.

From the headline of these few notes it may be asked by many, What have rabbits to do with Asparagus culture? A large portion of vegetable land under my charge is outside the walls where rabbits can have access to it. It is true there are not many, but still if even one rabbit in the night finds its way into a newly planted bed of Broccoli or Cabbage, the cultivator may find next morning the heads of a score or two eaten. I would like to ask Mr. Ward, or any reader of the Journal, if he or they have found that rabbits are partial to Asparagus? When a large portion of the garden is not rabbit-proof, it is difficult sometimes to have that correct rotation of crops that would be desired.

The following vegetables I cultivate without very much trouble from being eaten by these pests:—Vegetable Marrows, Broad Beans, Spinach, Globe Artichokes, Jerusalem Artichokes, Leeks, Rhubarb, Turnips, Seakale, Parsnips, Tomatoes, and Potatoes. I have also grown Celery, Scarlet Runners, Carrots, and Onions, but unless these last-named crops are wired round with netting at least 2 feet high they have been very much eaten. It is when the plant is in its small or infant state that the mischief is done. I have planted Colewort, Cabbage, and Cauliflowers, and although the rabbits are few and seldom seen to be shot at, they have nevertheless destroyed most of the Cabbage tribe, with the exception of Seakale and Turnips. Last autumn I made a small plantation of about sixty four-year-old Black Currant bushes, and although not far from them some trees and shrubs were barked by rabbits when the snow lay thick on the ground and hid all herbage from them the Black Currants escaped uninjured. Would Strawberry plants have escaped the same?—A. HARDING.

ROSE-GROWING FOR BEGINNERS.

(Continued from page 246.)

OWN-ROOT ROSES.

MANY cultivators talk much about Roses on their own roots, and though a good number of varieties are said to do well grown so, there are, on the other hand, many that will not. One of the principal advantages of budded plants is that they are cheap, and in an age like this, when quality seems to be entirely left out of the question, and when, as happens in very many cases, the price of the article is apparently the only consideration, budded plants must be first in the field. These latter remarks are not intended to mean that I prefer own-root Roses. I admit they might be interpreted so. I am in favour of good well-budded plants, life is too short for the others.

Another advantage that budded plants have is, as I hinted just now, the amount of time that is saved by the purchaser. As far as price is concerned, some reader may say, "I can buy own-root Roses for the same money as I can get seedling Briars." Granted that is so, we must remember that seedling Briar Roses are large well-grown plants when delivered; own-root Roses at the same price are generally little better than rooted cuttings, and if these make as good plants by the end of the following season as the others are to begin with, the purchaser may think himself fortunate. Some of the newer Roses, yes, and some of the older ones too, the flowers of which are very desirable, are such puny growers that they must be budded plants. We shall have to take them in this form or else go without them altogether. I will give as an instance of this the fine new Rose Lady Mary Fitzwilliam, which with me did not make enough wood all last season to give one really good cutting

per plant. "But," says somebody—some Manetti man probably—"budded plants are always dying and leaving gaps to be refilled." Well, you will not avoid this by having own-root Roses; these die sometimes too, more especially in the young state. When once established I admit that they take a lot of killing; the winter frosts may cut them down to the ground, but every bit of root is of the same breed as the parent, and spring sees the apparently dead plant return to life in the sending up of a lot of new shoots. Budded plants under the same circumstances would give us a rich harvest of suckers probably, but these would only be Briars or Manettis. Of course I am assuming that the plants are killed outright, but where they are planted properly frost in these parts rarely kills dwarf Roses on the Briar.

Again, the uprising of suckers, which have to be contended against and removed in the case of budded plants when they occur, becomes here a blessing instead of a curse, as all the suckers that arise from own-root plants must naturally be of the same varieties as the plants themselves. Here the only care necessary is to remove late sappy shoots as soon as they appear, shoots which experience tells us can never be expected to ripen before winter.

I cannot see why the vigorous growing Roses grown on their own roots should not do quite as well as they do when budded on stocks, the greatest disadvantage being, in my opinion, the length of time that the plants occupy the ground before we can hope for any result. Somebody has argued somewhere that if we compare the date of the putting in of the cutting which is to form the future stock, or the sowing of the seed of the seedling Briar for the same purpose, with the date of the making and planting of an own-root cutting, that we shall find that no time is gained by having budded plants. Possibly not, but we can go into the market and buy stocks ready for budding the same season we plant them, or we can buy plants to give us blooms at once, thus repaying the nurseryman for occupying his ground growing the stocks or the Roses for us, while our own gardens may be better utilised by being kept gay with Roses in the meantime. If a beginner wishes to make a collection of own-root Roses, the best plan for him to follow is to propagate his own; for the time cultivating plants on other stocks. In this way he will not sacrifice the present for the sake of the future, while on the other hand he will be gaining useful experience as the days pass by.

PROPAGATING OWN-ROOT ROSES. LAYERING.

This is the most certain way of getting Roses on their own roots. To carry it out it is only necessary to have a stock of dwarf Roses planted and in full growth. The business is best done about midsummer. It is done by bending down a branch of the growing Rose, after making a cut as shown in fig. 47, which cut it will be noticed has passed right under and beyond a bud. The cut part

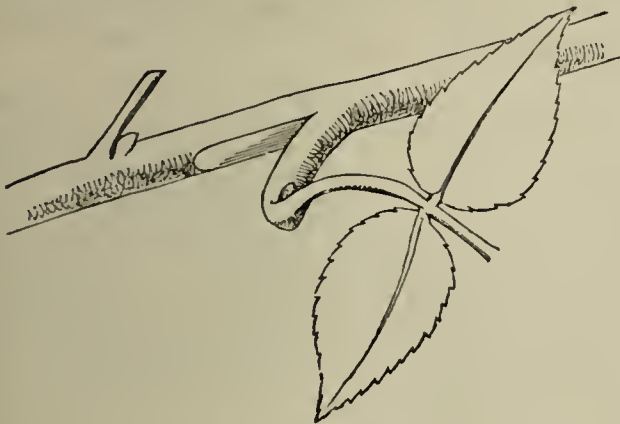


Fig. 47.—Layering Roses.

being pegged down about 1 inch below the ground, and a piece of flower pot or something similar having been inserted in the cut to keep it open, after which the soil should be drawn over, roots will in due time be emitted from the severed bud, and the branch when cut away with the newly made roots attached to it will become an independent plant. If the layering be done in early summer it will generally be the case that roots will have been formed by autumn, and, that being so, the branch may be cut off and planted. Where it is found that roots have not made their appearance, the cutting off of the branch had better be deferred until the following spring.

In bending the branch down in the first instance great care must be exercised so as not to break it clean off, the wood of many Roses being very brittle. When a branch is cut half through to start with, very little pressure is required to snap it off altogether. For

holding the branches down I find wire pegs, which can be easily made, answer best.

Fig. 48 shows a plant one branch of which has been bent down, the cut being made at *a*; some of the leaves have been removed from the branches. If there be any difficulty in keeping the



Fig. 48.—Layering Roses.

branch when bent down in its proper position a little stick should be inserted in the ground, to which it may be secured.

CUTTINGS.

The smooth-barked Roses strike readily; such varieties as John Hopper, Etienne Levet, and Ulrich Brunner are good examples of the section. One or two shoots of nice firm half-ripe wood should be cut off where they can best be spared, without crippling or disfiguring the plants. If they can be cut with heels to them all the better. The shoots should be cut up into pieces about 10 inches long, rejecting the soft unripe tops; each cutting should have two good leaves to it, and be cut close up to a bud at the base, as advised for Briar cuttings. In the case of those with heels there are always a lot of buds, although they are not visible, round this part of the branches. I may say here for this very reason that Briar cuttings are not advised to be cut with heels. It is not necessary to remove the lower buds from the shoots of Roses, as advised in the case of Briar stocks, because in the latter case suckers would be simply a nuisance, being part of the stock only, while in the case of own-root cuttings suckers could only be part of the Roses themselves, and therefore welcome. Still, I think some successful Rose-growers recommend the removal of these lower buds, and so the beginner had better take his choice, either to plant the cuttings as taken from the tree, removing all the leaves but two at the top, or else to cut out all the lower buds, as directed in the propagation of Briar cuttings. A cold frame in a shady place and a bed of sandy soil will be great aids to arriving at a successful issue in this matter, but if these cannot be obtained the cuttings should be put in very firmly—planting them as deeply as possible, still allowing the leaves to be above ground—somewhere where the sun cannot shine on them. If they can be lightly syringed with cold water for a few days after planting this will assist them to retain their leaves, which is desirable. Under these circumstances a fair per-centage of the cuttings will grow, but a cold frame will add to the number very considerably. Where a frame cannot be had sometimes a square wooden box might be available. If a piece of glass be procured to fit the top of this, and if, after knocking the bottom out, the cuttings are put under this box, the glass being afterwards made air-tight, or nearly so, by means of strips of paper pasted round the edges, nearly all the cuttings put in will strike, and the dead ones will be the exceptions. Mr. Taylor, the great Grape grower, is, I believe, the author of this very excellent plan; at any rate, it was, I feel certain, from his writings that I picked it up.

Cuttings must be put in while the leaves are on the trees and the sap in motion, if we intend to be successful with them.—D. GILMOUR, JUN.

(To be continued.)

THE PROPOSED GARDENERS' ORPHAN FUND.

ALL honour to Mr. Penny for projecting this scheme. That some such effort is required there is ample evidence in the length and breadth of the land; yet I, for one, must have kept aloof from it while there were proposals to erect a home or central institution, with all the expenses and chances of jobbery that such an institution would possibly lead to.

What would meet my views and those of others I have heard speaking of the matter would be a central fund from which allowances could be made to the natural guardians of the children of deceased gardeners, whether these may happen to be the mother, aunt, or other relation, such being, on evidence, fit persons to be entrusted with the care of the

children. This could easily be ascertained through the local horticultural societies and the local clergy.

It should be clearly defined what constitutes a gardener. At present any man who works in a garden or nursery calls himself a gardener. It should also be a condition that the orphans of all who have subscribed, say, 10s. annually, should have prior claim. Unless this is made a rule gardeners will have little confidence in the scheme. I write 10s., but it may be found that a smaller sum may suffice. It should take the form of an insurance society for gardeners' orphans, and in that form it may have a great future, but if it is to be a semi-benevolent Society I predict its failure.—Wm. THOMSON, *Clovenfords*.

[We readily insert this letter because it is brief and embodies the views of many gardeners; but it is desirable that future communications on the subject be addressed to Mr. A. F. Barron, Royal Horticultural Society's Gardens, Chiswick, London.]

GROWING CUCUMBERS FOR MARKET.

A FEW words on this subject may be of some use to a few readers of the Journal, and I will therefore try and point out how I make my early house pay. This house is 24 feet long, with six rows of 4-inch pipes, a eistern at the west end; two rows of pipes run under the bed, and these are covered with large slates, leaving a good air chamber below. The first week in December I have the bed half filled with fresh leaves pressed down very firm; I then have a little soil brought in for raising the seed upon, also for the plants when they are ready for placing out. This is not put on the bed but placed in a large box. I then bring in my first batch of 500 Lilies of the Valley for a start. These are placed on the leaves, packed closely in boxes about 3 inches deep, and seventy-five crowns in a box. They are covered with deep boxes, so as to exclude the light and help to confine the moisture. These are sold at a good profit. The other part of the bed is filled with *Eucharises*. These, like the Lilies of the Valley, pay very well. Then on the back wall I have two shelves filled with *Spiræas*, which are now all cleared off at a good profit, thanks to Mr. Jannoeh of Dersingham for his fine crowns both of Lilies and *Spiræas*. *Azaleas* are stood at the tank end, and these being forced every year are soon in flower. *Alba Bluthana* is the best for early work, being a pure white with a pleasant perfume. Mr. Jannoeh grows more of this than any other variety. As a double white *Deutsche Pearle* is the best, being more like a *Camellia*. *Adiantum* Ferns are stood on the floor to come in for cutting when the others are done.

This season I thought I would try a different way of treating my Cucumber plants. When they had made their ninth joint I pinched out the bud. They soon made the side shoots, and as soon as they showed the first fruit I stopped them, removing also the lateral shoots from the fruit joint, and only leaving one maiden flower. Up to the present they have done well. I cut my first fruit on the 14th of February, and the plants are now carrying a fine crop of fruit. By this system the plants do not get so soon crowded with weak shoots, and although I have only nine shoots to each plant they are still thick enough. Some might wonder how long they will continue bearing, and think that I shall soon get plenty of old and superfluous wood. This I was prepared for when I first thought of trying this system, but there is always a certain amount of wood to cut out after the plants have been growing some time. When I have to cut back I shall have young wood to work on, as I see my plants are now breaking from joints where the first fruits were cut.

One writer in a contemporary talks of mildew being caused by damping. This is unknown to me in a Cucumber house, although I syringe twice a day, and the house is full of plants until the end of April, for I propagate all kinds of bedding plants by hundreds, and can manage to keep the Cucumbers healthy and clean. Red spider is more often caused by allowing the roots to get dry, and although the top of the bed may be wet the bottom of it should be examined if red spider should appear. Whitening and lime is very well for shading, but Cucumbers like plenty of light, not a continual shade. The shading I use is scrim. This can be bought at 5d. a yard, 2 yards wide, and with care will last two or three seasons. I shall expect these plants to keep fruiting until October. They will then be cleared off, and the house thoroughly cleaned, ready for starting again. Cucumber-growing pays very well if you can dispose of the fruits near home.—J. WALLACE, *King's Lynn*.

[Two excellent Cucumbers accompanied this letter, and flowers of the white *Azaleas* mentioned, *Deutsche Pearle* being much the better of the two.]

CHRYSANTHEMUMS AND THEIR CULTURE—ANSWER TO A CRITIQUE.

I HOPED that I had calmly read, and I certainly intended to have fairly interpreted Mr. Garnett's arguments against the practice set forth in my book on Chrysanthemum culture. Mr. Garnett is altogether "at sea" when he says I fumed at the audacity of anyone questioning my teaching on the subject in question. I felt satisfied when reading his critique that I could safely leave it to the general public to decide whether Mr. Garnett was more clear, plain, and practical in his teaching than myself. I do not see that he has proved my practice wrong in any respect. Had he brought forth any evidence I should have been pleased to have accepted his reasons, but after all he has advanced I fear we are as far from the desired point as we were before. If Mr. Garnett had

brought forward on page 237 any new evidence I should have been pleased to reply to it, but he simply travels over the same ground and tries to prove that I perversely altered the sense of his arguments. This of course cannot benefit the general public in any way. I am of opinion that I answered his arguments clearly and fairly. Mr. Garnett cannot have the true variety Mr. Bunn, or he would not compare the quality of this variety to that of either the *Beverleys*. If he had Mr. Bunn correct he would at once determine that it is a much superior flower to *Beverley*, although it may be of the same type, hence my reason for placing it in my selection of twenty-four varieties. I consider it necessary to have representatives of various colours to make up a good stand of blooms, and were Mr. Bunn omitted what would Mr. Garnett substitute I wonder? That is my reason for placing Mr. Bunn there.—E. MOLYNEUX.

WATERTIGHT ASHPITS.

AFTER the very practical contributions of Mr. Simpson, "*Albion*," and "*T. W. G.*," nothing further can be gained by extending the subject, and I will keep to the matter as it stands between Mr. Riddell and myself. Firstly, then, how does Mr. Riddell fail to grasp my meaning as to the failing in his ashpit system? I distinctly stated that leakage must play an important part. Will your correspondent tell us to what degree oxidation must take place in order to free the elinkers from the bars? It will be interesting to know whether the oxidation spoken of takes place upon the bars in the gardens at Duneombe Park or in the furnace Mr. Riddell has hired for illustration. It appears not a little strange that Mr. Riddell must go outside his own domains to find what he considers a perfect system, or one so superior to ours. The specially constructed ashpit, Mr. Riddell says, is 4 feet 9 inches long, 1 foot wide, and 10 inches deep; ours as referred to is 4 feet long, 19 inches wide, and 9½ inches deep, sloping about a foot from the front for drawing out ashes. In measure it holds about 20 gallons; at high-water mark it is about 10 inches from bars. That more or less water is evaporated, according to intensity of fire, goes without saying; this I termed in my first notes self-acting. But we are told that the specially constructed ashpit is simply to aid combustion. Your correspondent may think so, but combustion may be had by other means, and the better the draught the more intense the heat, and the more the need of keeping the bars cool. As a matter of fact, water is put there first to preserve the bars, and what is added to combustion is a secondary yet economical gain, to say nothing of useful minor benefits. On this point it may be useful to quote the following from a work by Mr. Samuel Hughes, C.E., on manufacturing and distributing gas, pages 74 and 75:—"The ash-pans below the firegrate are supplied with water, the evaporation of which keeps the fire bars cool." Is it intended to convey that 1½ inch is the usual distance of water from the bars? If so, will Mr. Riddell say for what purpose the furnace is employed, because such is not the rule in gas furnaces, which appears to be taken as the standard, and yet not one writer has even hinted at destruction of the bars by the action of steam.

If I thought Mr. Riddell was very sincere in his regret at the futility of my endeavour to preserve our bars I should feel even more grateful if possible. It is difficult to see why water in ashpits should have a different chemical effect than in others. If our bars have by the action of carbonised vapour in four years become partially converted into steel, and the same system be continued, when are we to expect destruction to commence?—EDW. BURTON.

HAVING followed very closely the long discussion on the above, I had quite arrived at the conclusion that Mr. Burton's able explanation, strengthened by "*Albion*" and Mr. Simpson, had quite satisfied Mr. Bardney that as far as water was concerned it was better by far to have it in the ashpit. Yet he again appears with a long statement. Mr. Burton has said that water in the ashpits does preserve the bars, and he has also proved it as clearly as possible. I hope all the correspondents that are writing, or have written, on this subject will once more get a little nearer their own stokeholes, and give us their experience, and let Wilson's or any work on chemistry alone; we younger gardeners cannot always find all these works as quickly as they can be mentioned. One word in conclusion, we have a boiler with a watertight ashpit, and also one with a leaking ashpit; the former has been working for four or more years, and the bars are still as good as new, while the latter has been working about six months, and already we have had to put two new bars in as well as having to suffer much inconvenience from the smell of sulphur and dust arising when cleaning the fire. I hope this instance will help Mr. Bardney to be a little less unbelieving.—T.

CYCLAMEN CULTURE.

I READ in No. 2007, page 212, Mr. Dunkin's mode of growing the Cyclamen, which is good as far as it goes, but if he will try the following mode I think he will find it better. We take for granted that August is a good month to sow the seed. I winter my plants in shallow boxes, pricking them out in a light compost, half leaf mould and sandy loam, keep them close to the glass and always moist. They root more freely in boxes and grow stronger. I harden them and plant them out in a cold frame on a north border about the end of April, keep them close for a week or two, until they get a start; then harden them, taking the lights off until the end of September. If the flowers are not wanted

early the lights can again be placed on, admitting air in mild weather, and cover in case of frost. They grow freely in the autumn, and can be potted when convenient in the same compost, using plenty of drainage, but do not let the pots be too large. Grown in this way they are very little trouble, and make useful plants. After they have flowered do not dry them, but treat them in the same way as before—that is, plant them out in frames and harden on a north border. I grow them with as many as a hundred splendid blooms on a plant, in 6-inch pots. I also find that the corms will last two, three, or even four years, treated in this way.—G. A.

DEGENERATION OF THE CHAMPION AND OTHER POTATOES.

I AM glad this subject has, since I drew your attention to it, attracted the notice of so many able correspondents, and particularly so that among the number is Mr. W. Iggulden. This satisfaction is not diminished by his maintaining the negative in his recent paper on the matter. Permit me to draw attention, in a summarised manner, to what I consider defective conclusions therein. "If Potatoes are degenerating why is so much value attached to one of the oldest, the Ashleaf Kidney?" This variety is generally grown in frames or warm southern borders, for early use, and the "seed," or "sets," intended for next season "greened" in the sun for weeks. If this treatment was practicable, or would pay, for those grown extensively for farm and market purposes, degeneration might be deferred in case of certain varieties, but in nine cases out of ten would ultimately supervene. If Mr. Iggulden denies this, let him look around and see where are the varieties grown that had a preference fifty or even twenty years ago. My contention in reference to degeneration was, however, limited at first to the Scotch Champion on account of its precocity in sprouting almost as soon as it is lifted, and that growers of that fine variety thus lose the first and often the second growths. This tendency to sprout is not diminished if stored in open sheds and covered with fine hay against frost or if stored in Potato houses, as I had them; and still worse, if pitted in the open fields, as nine out of ten treat them in Ireland. This year, for instance, I saw the buds, or sprouts, out through the pits—through 6 inches of covering—in January. No doubt the season was abnormally mild.

I must confess I never tried Mr. Iggulden's method—"to leave a certain breadth in the ground until wanted for planting,"—of preventing the sets being weakened by sprouting. I am afraid in my own case this would be impracticable, as in my rotation of crops as soon as the Potato crop was lifted in October Wheat was sown, and is now several inches high. But apart from this difficulty, or any risk from frost, or other objections that might be urged, the Champion will commence to grow as rapidly by being left untouched in the ground as if pitted, as I have repeatedly noticed. The Magnum Bonum is exactly the reverse, and if both are "sown" or planted the same day the latter will be a fortnight later in reaching the surface of the bed or drill, all else being equal. If leaving the Champion crop undug until planting time were a remedy it would have been adopted long since in Ireland. Still I know no other variety that can compare with this for general purposes in quality, even admitting the fault of coarseness; and it is a confirmation of this view to have such authorities as Mr. W. Taylor and Mr. Iggulden coinciding. Notwithstanding my views as to the degeneration of the Champion, I am importing several tons of the best quality for a further trial direct from Scotland, and shall have most of them planted, this time in broken up new lea land, and with the tubers (large size) cut. Last season I planted them whole, but will not do so again.

If I differ from Mr. Iggulden on some points, I am glad to agree with him—notwithstanding the orthodox opinion—that "change of seed" in some varieties "is not always desirable." Change the old Ashleaf Kidney, and you may never succeed in getting the true variety again. I am using the same "seed" of Magnum Bonum for seven years, and so long as it keeps so good as at present use I shall not be tempted to change. Instead of planting it last it ought, however, be planted first, and, like Mr. Iggulden, mine were all down before the 10th March. I am trying about three dozen varieties, chiefly new, including White Forty-fold, received from your correspondent Mr. Inglis, and shall report results by-and-by; but I am no sanguine, as I have already cooked some of them.

I must thank Mr. Thomas Laxton, Bedford, for further answering the appeal. The whole of his letter is most important, but shall only ask space for the subjoined extract:—"Herewith I send you ten distinct varieties of my seedling Potatoes for trial, which I think may prove suitable for your climate. They have been mostly grown on warm forward land, but the quality is generally different on cool late soils and when planted late. Many growers here are disappointed with the 'Champion' type, and now, when it should be good, they have it with 'black eyes.' It is my favourite Potato, and I do not believe there is anything between Myatt's Ashleaf and that variety to come up to either in quality, and as a real nourishing food. The Lapstone approaches, but is a poor producer; all three are yellow-fleshed, and for quality give me the yellow-fleshed. Magnum Bonum I do not like in any way but as a producer." Then follow the names of the varieties crossed to produce those sent, closing with a request that they are not to find their way to "trade hands." Need I say that will be a point of honour with all sent me? Mr. Laxton concludes by saying those ten varieties have been selected from 200 he has in stock, and that number had been

tested from 1000—facts that will show how difficult it is to get a really good variety satisfactory in every respect.—W. J. MURPHY, *Clonme*.

DRAINING FLOWER POTS.

Too much attention cannot be devoted to this. No matter how good and suitable the soil is for plants, nor how genial the atmosphere may be, if the drainage is deficient perfect success will never attend the operations of the cultivator. I do not think it would be difficult to prove that three parts of the plants that are in bad health throughout the country owe the origin of their infirmities to imperfect drainage, and where the rule is to pot plants only once a year deficient drainage at the commencement invariably leads to serious results before potting time comes again. So long as a plant continues in perfect health it is a pretty sure indication that the drainage is all right, but as soon as it exhibits the slightest sign of ceasing to thrive the drainage is the first point that should be seen to. There is nothing in the whole range of garden operations easier than draining a flower-pot. Boys who have not reached their teens are often set to do the work, and they can fill a pot to a certain depth with drainage as well as anybody, but draining pots for choice plants, or indeed plants of any kind that are expected to do well, is no work for the inexperienced, but should be done by those who fully understand the advantages and disadvantages attending the work. As a rule properly placed drainage will always remain in good working order for twelve months at least, and it is only when the soil is washed amongst the drainage that it requires to be re-arranged.

The most common material used for drainage is broken pots. Oyster shells are also excellent for the purpose, and broken bricks may also be used sometimes; but the way of placing them all is just the same, and there is really only one right way of draining pots, no matter what the substance used for drainage may be. A large piece of the material should be placed over the hole, smaller pieces being arranged over this, finishing with small pieces, as this prevents the soil passing down. There should be no putting the drainage in with a spade or trowel, or in large quantities at a time, but each of the large pieces should be lifted separately, and be put into its place with the hands. A few oyster shells at the bottom of the pot and a little small material over them generally answers well as drainage for large-sized pots.—A GARDENER.

SCOTCH ROSES.

BEFORE the Rose-planting season is over for another year I would like to call attention to these pretty Roses, which ought to be seen in every garden. They are not very rampant in growth, but assume the form of well furnished handsome bushes, with small foliage not unlike the Sweet Briar in its outline and size. The buds are small and they have none of the huge proportions of a Hybrid Perpetual, but they are produced in the greatest profusion, and when open they cover the plant with a perfect mass of blossom. The flowers are about the size of the wild Briar blooms, much more double and altogether more showy. They are admirably adapted for massing in beds in the pleasure grounds or by themselves anywhere, and although they vary in colour I must say I am very partial to the yellow flowering variety. It is as good in colour as the *Maréchal Niel*, and is admired by all who see it. We had two or three rows of it amongst our H.P.'s in a border, but they did not harmonise well with the large flowers, so we moved them into a bed in the pleasure grounds, and in June and July they are exceedingly attractive. Nothing could surpass their free flowering habit, and although individually the buds and blooms are not of much value, little branches may be cut with scores of blossoms attached, and these may be used for filling flower glasses with charming effect. They bear transplanting well, succeed in any rich soil, and I have never known them fail.—J. MUIR, *Margam*.

SALADS AND SALAD CULTURE.

(Continued from page 246.)

CELERY.

THIS is not only an important ingredient in the salad, but an indispensable kitchen garden crop, and worthy of the best attention that can be given to it; and here I beg to repeat what I said in the early part of my paper—that I do not intend going into exhaustive details of cultivation, because that would be a paper in itself as regards Celery. I will therefore only allude to those points that are of most consequence to a gardener in a private establishment; market growers, and such as compete for prizes at Celery suppers, have their own methods and their own varieties, and they may confidently be left to take care of their own interests. The type of Celery best adapted to our purposes is to be found among the short, or medium and compact-growing sorts. These are well represented by Turner's Incomparable, Seymour's Superb White, Sandringham, Carter's Ivory White, Cole's Red Defiance, Major Clark's Red, Standard Bearer, &c. Several of these have more or less of the peculiarity of making nearly all their leaves of one length, and so have little or no waste about them. The Ivory White just named has this quality in a marked degree, and Standard Bearer is the hardiest of all. These dwarf sorts of Celery admit

of being planted much closer together and in shallower trenches, and consequently require less earthing up than the taller and coarser sorts. Sowings may be made from the beginning of March to the end of April; the early ones in gentle heat, and the later or last in the open ground. I have already remarked that the quality of salading depends largely upon its being grown freely from first to last, and with Celery this is a point of first-rate importance. Great care should therefore be taken that the young plants sustain as small a check as possible in the one or two removals involved in cultivation. Given a good variety of Celery, I believe that pipy and stringy stalks and premature bolting may invariably be attributed to defective cultivation. Whether planted in single or double lines, in trenches, or in beds with the rows crosswise, Celery requires plenty of manure under it, and a bountiful supply of water or clear liquid manure during early growth and previous to the commencement of earthing up. The earthing should not be begun too soon, and preparatory to that each plant should have the side growths and a few of the small leaves removed, and be somewhat loosely tied round to keep the earth out of the heart, at the same time pressing the soil rather firmly between the plants. A second earthing will be required a few weeks later on, and when growth has nearly ceased a fine dry day should be taken advantage of to perform the operation finally, again taking care to keep the soil out of the heart of the plant. In the spring of the year the remains of the Celery crop may be dug up, and as much of it as is sound may be laid in carefully on the north side of a wall where it can be protected if necessary. The operation of removal is a check upon growth, and the shady position still further retards it, and thus the Celery season is considerably prolonged.

RADISHES.

Radishes require a generous soil, and in hot weather a somewhat shady position. Wood's Early Frame is a good one to sow in gentle heat among early Carrots and Potatoes in February and March, and there is no nicer Radish than the French Breakfast to sow out of doors from March to the end of August. A sowing or two of Black Spanish made late in August and early in September, where they can have a little protection if necessary, are useful in the winter months. When Radishes are required to be dished up by themselves they look much better if, instead of chopping all the leaves off to one length, two or three of the larger ones are removed entire and the green seed leaves left on.

CHICORY AND FRENCH DANDELION.

Chicory and French Dandelion sown in drills about the middle or end of May, or even early in June, are quite invaluable for lifting and forcing in a dark place in the winter time. If sown earlier than the time named, these crops throw up their flower stems during the autumn, and are thereby either quite spoiled, or at least much deteriorated.

BEEF.

Beet, when in good order, exactly fulfils the conditions of a salad plant, as it is not only good for food but pleasant to the eye. It thrives best in a light friable soil that has been well manured for previous crops. A good time to sow is from the end of April to the 20th May. The Beet is a tender plant, and if sown too early is liable to be injured, or even killed, by late spring frosts; it is also subject to run to seed, and thus become useless. Small or medium-sized roots that are free from "forks" are the best, and especial care should be taken at the time of lifting to avoid all cuts, breaks, and bruises, as upon this depends the brilliant colour and fine flavour so highly prized at table. Three good sorts to grow are the Egyptian Turnip-rooted, Pine Apple Short-top, and Nutting's Dwarf Red, and there are others equally good.

MUSTARD AND CRESS.

Mustard and Cress need but few remarks beyond this, that in their treatment we must diverge a little from the good old rule of "sow thin, and sow often," and instead we must sow thickly, and often, and evenly, on a level surface in shallow boxes during winter and spring, and in summer a shady place out of doors will suit them well. The two crops should always be sown separately, and the seed should be kept dark and moist until germination takes place, which will be a little quicker with Mustard than with Cress. Rape is sometimes used in this way, but it is altogether inferior in quality to White Mustard.

LAMB'S LETTUCE.

Corn Salad, or Lamb's Lettuce as it is sometimes called, is a useful and easily managed salad plant. It may be sown at any time in good free soil, either thickly, to be cut in the mass like Mustard and Cress, or thinly, to be utilised when the individual plants are big enough. It may also be pressed into service, if needed, by being sown in shallow boxes and brought on in gentle heat.

RAMPION.

Rampion is a salad plant not often seen nowadays, and yet it is easily managed by the timely observance of one or two points of cultivation. Several sowings may be made during the spring and early summer in very fine soil. This is an important point both as regards the seed-sowing and the after growth of the root. The seeds are very small and smooth, and the long white Radish-like root is liable to "fork" if the soil is lumpy. The seed is best sown in very shallow drills, and the crop should be duly thinned and kept free from weeds, and well watered during dry weather. The root is the part eaten, and it should be peeled before being committed to the salad bowl to add its sweet nutty flavour to the rest of the appetising compound.

WATERCRESS.

Watercress may be utilised as a salad plant at any time, its peculiar flavour and aroma being always agreeable. Boxes of any sort or size filled with roots planted in ordinary good soil, and placed in a little heat, or even in a cold frame, and frequently and plentifully doused with clean water, will soon give plenty of Cresses. Cucumbers, to do them justice, require a paper to themselves, and my paper is, I fear, already too long, so I must pass them by.

MISCELLANEOUS.

A green salad, consisting chiefly of Sorrel, Dandelion, and Burnet, may be gathered in our meadows during the summer season, and many such are gathered by the foreign workmen resident amongst us. Burnet is said to give the flavour of Cucumber to a salad, and curiously enough the foreigners seem all to know the plant we call Burnet by the name of "Pimpernel," while we attach exactly the same name to a plant which is botanically and otherwise totally distinct, the one being *Poterium Sanguisorba*, and the other *Anagallis arvensis*. The mixing of a salad can hardly fail to be of interest to a gardener, even though he is not called upon to do it, and here, as a rule, his interest in it ceases. There are probably as many recipes extant for the purpose as there are for curing a cold, and I will not undertake to decide which is best, but here is one written a many years ago by the Rev. Sydney Smith, a noted wit and divine, and not unacquainted with the good things of this life:—

"Two large Potatoes, passed through kitchen sieve,
Unwonted softness to the salad give;
Of mordant mustard add a single spoon,
Distrust the condiment which bites so soon:
But deem it not, thou man of herbs, a fault,
To add a double quantity of salt.
Three times the spoon with oil of Lucca crown,
And once the vinegar procured from town.
The flavour needs it, and your poet begs
The pounded yellow of two well-boiled eggs.
Let Onion atoms lurk within the bowl,
And scarce suspected animate the whole;
And lastly, on the flavoured compound toss
A magic teaspoon of anchovy sauce;
Then, though green turtle fails, though venison's tough,
And ham and turkey are not boiled enough,
Serenely full, the epicure may say,
Fate cannot harm me—I have dined to-day!"



VOL. VIII. of the Journal of the Royal Horticultural Society is devoted to THE FROST REPORT, which has been in hand for a considerable time, and is dealt with in a voluminous manner. It has been prepared by the Rev. G. Henslow, M.A., and gives a great number of summarised and tabulated reports "on the effects of the severe frosts on vegetation during the winters 1879-80 and 1880-81." Particulars are furnished with each report as to the general character of the soil where the observations were made, the altitude and exposure, the rainfall, the minimum temperature, and a list of the plants injured, together with general observations. A useful index is given to the names of plants mentioned in the course of the 338 pages comprised in the work. An index is also furnished to the counties, and an interesting introduction by the Editor.

— MUSCAT GRAPES IN APRIL.—When Muscat Grapes are kept till April they are in our experience more or less shrivelled; but we have

received a sample from Mr. Stephen Castle of the West Lynn Vineyard, clear, smooth, and firm, the footstalks as green and berries as fresh as we usually find them at Christmas. We have not seen their equal at this season of the year, and we congratulate the grower and "keeper" of them on his meritorious achievement. We understand they were cut from the Vines in December. They have been admirably preserved and are of excellent quality.

— **NATIONAL CHRYSANTHEMUM SOCIETY.**—The annual report, the financial statement, and schedule of prizes of this Society is now issued for the current year. It has become quite voluminous, consisting of fifty-seven pages, and giving full particulars of the results of last year's proceedings, and the arrangements for 1887. Most of these have been previously noted in our pages. The special prizes are numerous and substantial in amount, and the competition in some of those classes is likely to attract considerable attention. The schedule can be procured from Mr. William Holmes, Frampton Park Nursery, Hackney.

— **THE COMMITTEE OF THE LEEDS HORTICULTURAL SOCIETY** have decided on having an Exhibition this year in the "Jubilee week," the Show opening on June 21st and continuing for four days. The schedule, which is very neat in design, contains a portrait of the Queen. Prizes are offered in fifty-three classes, the most noteworthy being £24 in three prizes for twelve specimen plants, £15 and £10 for groups, £12 for Orchids, and £10 in three prizes for a collection of fruit. We trust "Queen's weather" will prevail at the time, and make the event a great success. Mr. J. H. Clark is the Secretary.

— **A NORTHERN** correspondent writes respecting **THE WEATHER**: "March, 1887, although not so protracted as the same month in 1886, has been the most severe I ever experienced. For ten days the temperature ranged between 10° Fahr. (the lowest), and 25° Fahr. (the highest) during any night, and the mean day and night during that period was 27° Fahr. Hepaticas, Primulas, and other hardy spring flowers are totally spoiled for the season, and where plants were covered a few days with snow (which starts them into growth) they are also destroyed."

— **MR. W. A. COOK** sends the following on **NARCISSI**:—"These popular flowers are very useful for the decoration of the drawing-room, greenhouse, and conservatory, yet we do not find many good collections. I do not know why unless the expense is the drawback. Their cultivation should be well understood. It is, any way, very simple, and they can be had in flower from the end of December until the end of April and into May. The Polyanthus varieties are all extremely sweet, and the large Trumpet varieties are as graceful, and can be kept a long time in flower by placing them as they open their flowers in a house with a northern aspect, I have had some in flower for six weeks. We have successfully flowered the following in pots, some of which have flowered three consecutive years, and I believe, with careful management after the flowering period, can be done for a long time—Bicolor, Empress, Horsefieldi, Albicans, Exquisite, pallidus præcox, tortuosus, Telemonius plenus, Capax, plenus maximus, Obvallaris, Golden Spur, cernuus plenus, Leedsi, C. J. Backhouse, Sir Watkin, Mary Anderson, Barri odorus plenus, ornatus, Poetarum, Single Jonquils, Double Jonquils, Bazemann Major, Gloriosus, Grand Monarch, Paper White, Sir W. Scott, States General, Jaune Suprême, and Sir I. Newton."

— **LATE DESSERT PEARS.**—A correspondent, "Kiltarnan Abbey," desires to know if any of our readers can name for him one or two dessert Pears of high quality. Very late (February to May); very hardy; good growers; good bearers; suited for bush culture in the north of England or Ireland, in a windy exposed situation or freestone subsoil. Winter Nelis, Bergamotte Esperen, Beurré Bosc and Glou Morceau will not do.

— **A PETERBOROUGH** correspondent, referring to the **EFFECTS OF THE WEATHER ON VEGETABLES**, states that "It has been more destructive to some vegetables, such as Lettuce, Endive, young Cabbage, and Parsley, than I have known for the last fifteen years. Bullfinches have also been more busy than usual at the fruit, attacking not only Gooseberry and Currant bushes, but also Williams' Bon Chrétien and other Pears badly." The flower buds of early Pears in the neighbourhood of London are advancing fast now, the recent bright sunny weather having hastened them; also Gooseberries, Currants, Plums, and many occupants of the borders.

— **THE** new poligrec seedling **TEA ROSE PRINCESS BEATRICE**

was shown by Mr. H. Bennett at the Crystal Palace on the 26th ult., and awarded a first-class certificate, an honour that was previously awarded it at South Kensington on June 23rd, 1885. The blooms shown were notable for their neat form and good substance, the colour being a soft yellow tint suffused with rose, especially in the centre and towards the margin of the petals. Mr. Bennett describes it as "a vigorous grower, with stiff erect wood, thick handsome foliage; free flowering." It is very pleasing in colour, and will probably be valued for cutting.

— **"J. M."** regards **LOBELIA CARDINALIS** as "one of the most useful flower garden plants. When once a root is procured it may be lifted, divided, and replanted every spring until it becomes quite plentiful. When the stems are about 1 foot in height they begin to show signs of flowering, and throughout July, August, and September it produces many graceful spikes of dark red flowers. It is excellent for cutting, and groups of it in the flower garden are particularly effective. It is an agreeable change from Pelargoniums and Calceolarias. The present is a good time to introduce it, divide it, or replant it. A rich soil suits it best, and I never knew it to fail in any situation."

— **OWING** to the **CONTINENTAL HORTICULTURAL COMPANY** being in liquidation, a sale of the plants in the extensive nursery at Ghent is announced to be held on May 16th next and following days. The plants chiefly comprise Orchids, Palms, Ferns, Cycads, Azaleas, and Camellias. The periodical works, "L'illustration Horticole" and the "Lindenian," with a number of Orchids and Nepenthes, have been retained for the Brussels nursery of the new Company noticed recently.

— **HOME-GROWN TOBACCO.**—The Board of Inland Revenue have just issued revised regulations governing the permission given by the Lords of the Treasury in 1886 for the experimental cultivation of Tobacco in the United Kingdom. Any occupier of land intending to plant Tobacco must, on or before the 5th prox., give notice to the Secretary of Inland Revenue setting forth the extent of land to be planted, and the place, parish, and county where it is situated. After permission is granted a declaration must be signed by the grower to the effect that the revenue officers will at all times have access to the planted land, and to the rooms where the Tobacco will be dried. All Tobacco grown and gathered must be removed to a drying room, kept there until properly cured, and then packed in bags, bales, or casks of an approved size. After the packages are weighed by a revenue officer the duty must be paid, or the Tobacco deposited in a Customs or Excise warehouse. The penalty for growing Tobacco without permission, except in small quantities for scientific or ornamental purposes, still remains in force.

— **THE ARRANGEMENT OF COLOURS.**—A Staffordshire correspondent writes—"I agree with what is stated in the leading article of last week's Journal respecting the jumbling together of colours whereby they kill each other. This is too frequently done not only at shows, but also in conservatories and in the general arrangement of cut flowers. Many seem to think that the most beautiful effects and the highest excellence are only attained by placing together the greatest number and diversity of flowers, but I believe such arrangements to be opposed to good taste, art, and beauty. Hyacinths, Tulips, and Crocuses should always be grouped either amongst fine-foliage plants or alone. The black or purple-black Hyacinths ought not to be admitted in any mixed group, and are only allowable for forming a contrast with white ones, or in massing to give depth of shadow in artistic groups."

— **THE BEDFORD HORTICULTURAL SOCIETY** will hold their fourth annual Show on Wednesday, July 13th, this year in a field on the Goldington Road, Bedford. Substantial prizes are offered in the leading classes, especially for cut Roses, the best prizes in two classes consisting of silver cups of £5 and £4 respectively.

— **"T. W. G."** writes on **ROSES**—"What odd slip of the pen makes 'D., Deal,' refer to Ferdinand Chaffolte as an 'absolutely new Rose' (p. 249)? It was sent out by Pernet in 1879, and though it once received a first-class certificate from the Royal Horticultural Society, the award must have been made on a dark foggy morning, or in winter, when the appearance of any Rose was enough to make people contented, as the variety produces a coarse, dull red, cup-shaped flower of little beauty, and is now rarely seen in public. The new Tea mentioned is Souvenir de Gabriel Drevet, not Drouet."

— **MR. JOHN CARTER**, Keighley, has forwarded us a handsome

plant of RHODODENDRON CAUCASICUM ALBUM, and remarks that "it is the true variety, quite distinct from Cunningham's Dwarf White. Both were sent out many years ago by (I believe) the late Mr. Cunningham of Comley Bank, Edinburgh, and from whom I bought them and propagated by layering ever since. For either forcing or outdoor, in my opinion, there is no Rhododendron to equal it." The specimen sent is a dwarf compact bush, bearing a score of neat flower heads, the corolla white, with a slight greenish tinge in one lobe, and more suggestive of an Azalea than a Rhododendron. It is unquestionably a handsome variety, and evidently well adapted for culture in pots.

— GARDENING APPOINTMENTS.—Mr. Alexander Black, who has been foreman to Mr. J. Riddell, The Gardens, Duncombe Park, Helmsley, Yorks, for the last eighteen months, has been appointed gardener to the Duke of Leinster, Carton Park, Maynooth, Ireland.

— MESSRS. OAKSHOTT & MILLARD, Reading, send us flowers of CINERARIAS, representing their improved large flowering strain. The flowers are large, varied in colours, and very bright, some purple selfs being particularly good.

— THE SOUTH ESSEX HORTICULTURAL SOCIETY have issued their schedule for 1887, and announce that their Exhibition for the present year will be held as usual in the grounds of Knotts Green, by the permission of J. G. Barelay, Esq. The prizes are of a similar character to those of previous years, and we notice that there is a balance of £17 in the Society's favour.

— MR. E. MOLYNEUX considers "SYRINGING CHRYSANTHEMUMS a very important detail in successful culture, both as a means of promoting a healthy growth as well as a preventive of the spread of insects, but I prefer to do it once a day only, and that in the evening. I do not think it necessary to syringe the plants in the morning as well as in the evening, for the reason that they are exposed to night dews. Syringing should not take place in a general way before the plants are placed out of doors in May, nor in cold sunless weather should it be repeated, or mildew may be encouraged. It is best done in the evening after a hot day; the leaves at the time are inclined to be soft and in some cases flabby. Wet the under side of the leaves as well as the upper side, as in such a position insects are most likely to lodge. A gentle dewing on the surface of the leaves does not remove them. Where the plants are numerous and placed in rows the garden engine is the best instrument to use. The water should be directed to the foliage with some force by going between two rows of plants and returning in the opposite direction; the plants then receive a thorough washing, which is far better than a light sprinkling with the hand syringe. They should not be syringed after the middle of September, the nights at that time becoming cold."

THE LITERATURE OF GARDENING.

[As noticed last week Mr. W. Paul, F.L.S., recently read a paper upon this subject before the Royal Society of Literature, and of which we now give some extracts. After dealing at some length with the scriptural references to gardening subjects, the progress of the art amongst the ancients, and the continental literature, Mr. Paul proceeded to the consideration of the gardening literature of this country. It may be here remarked that the author mentioned as Didymus Mountain was really the Thomas Hyll or Hill named below, and though the late Mr. G. W. Johnson named them as distinct individuals in his "History of English Gardening," he subsequently corrected the mistake in "Notes and Queries" and in this Journal (page 449, vol. xxvii., second series, November 19th, 1874), when a portrait was given of Thomas Hill.]

WE now come to the literature of gardening in England. The earliest work I have on the subject is by Maer, written according to some about the middle of the fifteenth century, but the first printed edition appeared according to Pritzel in 1487. My copy is in Latin verse, but I have seen, although I do not possess an English translation of it. It is in the character of a Herbal, and is illustrated with rude cuts of the plants it describes. Dr. Pulteney in his "Sketches of Botany" states that there are several manuscripts on trees and plants in the Bodleian library, which were written before the invention of printing, or at least before its introduction to England. Johnson in his "History of Gardening" tells us that the author of the first book written on cultivation in England was Watton de Honley in the reign of Edward III. In "Arnald's Chronicle" (1521) is a chapter on "The Crafte of Graffynge and Plantinge and Alteryng of Frutys." Thomas Tusser (1515-1580) wrote "One hundred points of good husbandry," a book which has gone through many editions. I have the modern edition by Dr. Mavor, published in 1812, dedicated to Sir John Sinclair, at that time President of the Board of Agriculture. This work

is principally on agriculture, but he gives lists of forty-two sorts of seeds and herbs for the kitchen, twenty-two sorts of herbs and roots for salads and sauce, eleven herbs and roots to boil or to butter, twenty-one strewing herbs, forty herbs, branches, and flowers for windows and pots, seventeen herbs to distil in summer, and twenty-five herbs to grow in the garden for physic. He also gives a list of twenty-seven sorts of fruit trees to beset or removed. The book is written in verse, and is full of wise precepts on rural affairs in general. Dr. Bulleyn (1500-1576) wrote on gardening, and tells us that we had excellent Apples, Pears, Plums, and Cherries in his time, although it was customary to import them from France and Holland. Henry Lyte published a translation of Dodoens' Herbal in 1578, an interesting book, because, although it does not touch on cultivation, the enumeration of plants and trees, their description and nature, is very full and valuable. Dodoens seems to have borrowed much from Dioscorides, a Greek herbalist of the first century, as our own Gerard later on borrowed much from Dodoens:

Didymus Mountain published the first part of the "Gardener's Labyrinth" in 1571. He does not claim originality, and as a compilation it is valuable, bringing together scattered fragments on practical gardening. A second part of this book was published in 1577, and numerous editions succeeded at brief intervals. Thomas Hyll published "The Profitable Art of Gardening" in 1563, and there are other editions of this book at about the same date. Sir Hugh Platt published "The Jewel-House of Art and Nature" in 1594, and "The Paradise of Flora" in 1600, subsequent editions of the latter having the title of "The Garden of Eden." I have both these books, but not the first editions of them; the former has little in connection with gardening, although the author claims to have presented the Lord Mayor with fresh green Artichokes on Twelfth Day, with a score of fresh Oranges, which he had kept from the previous Whitsuntide. "The Garden of Eden" is really a book on gardening. The author says in his epistle to the reader that "his collections are not written at adventure or by an imaginary conceit in a scholar's private study, but wrung out of the earth by the painful hand of experience." The publisher tells us there was "not a gardener in England of any note but made use of his discoveries and confirmed his inventions by their own experience, and whatever they discovered and communicated he freely acknowledged by naming the author." He speaks of trees and plants as "God's Vegetable Creatures." The style is clear and elegant, conveying much sound instruction; but the author was living in the twilight of gardening, and did not discern all things so clearly as he thought. He was in friendly communication with gardeners and lovers of gardening, and seems to have scrupulously acknowledged the services of those he borrowed from. In 1578 appeared a translation of Heresbach by Barnaby Googe, under the title of "Foure Bookes of Husbandrie, containing the Whole Art and Trade of Husbandrie, Gardening, Graffing, and Planting, &c." of which Johnson in his "History of Gardening" says, "It is a book replete with just observations, and though short and imperfect, still superior to any work that had preceded it."

In 1597 appeared "The Herbal or General History of Plants," by John Gerard, but this work, important and valuable as it was in regard to its influence on gardening, is botanical rather than horticultural. In the same year was published "A New Orchard and Garden" by William Lawson, and with it "The Country Housewife's Garden." These two works are usually found together, and seem to have been written by a man who had a practical knowledge of his subject. The first is principally occupied with the orchard, the second with herbs, but here he recommends two gardens, one for flowers, the other a kitchen garden. Gervase Markham, who wrote in the early part of the seventeenth century, seems to have been an author by profession. His chief works are agricultural rather than horticultural. In "A Way to Get Wealth" he has, however, a division, "The Making of Orchards, Planting and Grafting, the Office of Gardening, and the Ornaments, &c.," but which seems to be the same as Lawson's "New Orchard and Garden," already alluded to. John Parkinson published his first book, "Paradisus in Sole Paradisus Terrestris," in 1629. I have read somewhere that he intended the title of this book as a play on his own name, "Park-in-sun." This work seems to me a new departure in the literature of gardening, for it not only recognises and figures the many varieties of flowers which were springing into life under the hands of the cultivator in his time, but it has a good deal to say—and says it well—on the arrangement of gardens and on the cultivation and preserving of the plants which they contained. It is the work of a scholar, and one who did not look with indifference or contempt on the practical operations of the art. His "Paradise," or "Garden of Pleasant Flowers," begins with the Crown Imperial and ends with the Grapes. In the large list of flowering plants which he enumerates are Tulips, 137 sorts; Narcissus and Daffodils, 95; Hyacinths, 50; Crocuses, 31; Irises, 73; Anemones, 67; Ranunculuses, 23; Geraniums, 9; Auriculas, 22; Primroses and Cowslips, 21; Carnations and Gilliflowers, 52; Pinks, 20; Roses, 24; and smaller numbers of other flowers. Continuing his work he takes up the kitchen garden as a second part, and concludes with the orchard as a third part. With both of these he deals somewhat briefly, but still with no apparent diminution of interest, and in advance of what had hitherto appeared on the subject of English gardening. We have no time to give extracts, and this is the less important, as the "Paradisi" although not free from errors is a wonderful book for the age, and should be in the possession of every lover of gardening. In 1640 appeared the "Theatrum Botanicum or Theatre of Plants" by the same author, which some would likely consider a greater work, but which is botanical rather than horticultural.

In 1651 was published anonymously "The Countryman's Recreation, or The Art of Planting, Grafting, and Gardening." This book, which has a copious table of contents, touches on almost every point of practical gardening, but while containing some good things abounds in vulgar errors. Three years later appeared "A Treatise of Fruit Trees," by Ralph Austen. This is a good book, and contains much sound advice on the subject of which it treats. The author exposes the superstitions and errors of the earlier writers on gardening. His "Observations on some parts of Sir Francis Bacon's Natural History as it concerns Fruit Trees, Fruit, and Flowers," is still well worth reading. Walter Blith's "English Improver Improved," my edition of which is dated 1652, is a book much in advance of the times, and although principally agricultural it treats of woodlands, orchards, and garden fruits. I have a curious little book styled "Adam out of Eden," by Adam Speed, Gent. (1659). In it he tells us that there are about London that do make £200 an acre by gardening, but as he also tells us to graft Apples, Roses, and Vines on Cherry stocks, he cannot be considered a reliable authority. Samuel Hartlib's "Legacy of Husbandry" (1655) is a genuine book, although not an original one. He says, "Gardening is but of a few years' standing in England, and therefore not well understood;" and again that a Surrey landlord feared the gardeners would spoil his ground by digging. About this period Dr. John Peale wrote several treatises on orchards and fruit trees of considerable merit. "The Gardens of Cyrus," by Sir Thomas Browne, attracted some attention at this time. But John Evelyn, by the translation of "The French Gardener" and "The Complete Gardener," and the publication of the "Sylvia," Terra, and Pomona, and the "Kalendarium Hortense" gave a great stimulus to gardening. These works, as may be supposed, were elegantly written, and written by one who understood the subject and took a deep interest in it. Robert Sharrock, Fellow of New College, Oxford, was the author of two books on gardening, one "An Improvement to the Art of Gardening," published in 1694, the other "The History of the Propagation and Improvement of Vegetables," in 1660. These are good books, and would doubtless be very welcome to many in those days.

The "Flora Ceres and Pomona" of John Rea was published in 1665. It is a folio volume illustrated with numerous formal plans for flower gardens, and copious lists of flowers, fruits, and trees. John Worledge wrote several works on rural affairs. "Systema Agriculturae," 1669, and "Systema Horticulturae," 1677, both treat of gardening and are not without merit. Drope published a small book on fruit trees in 1672. It is full of sound instruction, which appears to have been gathered from experience. "The Planters' Manual," by Charles Cotton (1675) is a work on fruit trees only, and gives lists of the best sorts of fruits and Pears for every month in the year. Moses Cooke wrote a book on "Forest and Fruit Trees" (1679), which was an authority in its day and passed through several editions. Another work on fruit trees by T. Langford (1681) was considered in its day a book of considerable merit, and contains at the end a few pages of greens and greenhouses, with a catalogue of choice fruits and evergreens to be had at Broughton Park. Other writers of this time are Leonard Meager, Samuel Gilbert, and John Reil. Gilbert, in his "Florists' Vade Mecum," gives a list of no fewer than thirty sorts of Roses which were cultivated in gardens at that time (1683).

Sir William Temple wrote an essay on "The Garden of Epicurus, or of Gardening in the Year 1685." It favours the Dutch style of gardening, and is written with his customary ease and elegance. London and Wilt published two translations from French authors between 1699 and 1706, with alterations and additions, which made them standard works in their day. William Fleetwood, Bishop of Ely, the greatest preacher of his time, brought out in 1707 "Curiosities of Nature and Art in Husbandry and Gardening." It is very well written, but much behind the age, and the writer evidently knew nothing of practical gardening. Other authors of this period are John Mortimer and William Salmon, while translations of Van Oosten's "Dutch Gardener" and "The Theory and Practice of Gardening" by Le Blond were offered to the public.

The love of gardening displayed by James I., Charles I., Charles II., Queen Mary, and Queen Anne, and the means they employed to promote it, had doubtless a great influence on its literature, and we now find literary men helping it forward by occasional efforts. Cowley's letter, "The Garden," addressed to Evelyn, may be given as an example. In the early part of the eighteenth century John Laurence wrote a series of works on gardening, chiefly derived from his own experience, and which were much in advance of previous writings on the subject. Switzer is a great name in the garden literature of this age, and if we had the time we might say a great deal in praise of his industry and intelligence as an author. He wrote "Iconographia Rustica" (1718), "The Practical Fruit Gardener" (1724), "The Practical Kitchen Gardener" (1727), all comprehensive in nature and sound in teaching, and numerous other works. Richard Bradley was also a voluminous and distinguished writer on gardening at this date. His "New Improvements on Planting and Gardening" and "Treatise of Husbandry and Gardening" are two valuable works, although not distinguished by originality. Passing over many writers of this period whose works were useful, but not remarkable, we come to Philip Miller, the "hortulanorum princeps" of the eighteenth century. His "Gardeners' and Florists' Dictionary" was published in 1724, in which work he was assisted by other gardeners of the period. Successive editions of this work appeared, the ninth edition in 1792, edited by Professor Martyn of Cambridge. This long remained a standard work on gardening and botany, and translations were published in the French, Dutch, and German languages. He published also the

"Gardeners' Kalendar" (1731), which passed through many editions, and some papers on gardening which appeared in the "Philosophical Transactions." Batty Langley wrote "New Principles in Gardening" in 1728, and "Pomona," with numerous coloured plates, in 1729. The "Scots' Gardeners' Director," by James Justin, was a book of some repute in its time. Sir John Hill was a voluminous writer on gardening and botany. His "Eden" folio, numerous coloured plates (1757) is still an interesting book, and his "Vegetable System" (1759), twenty-four volumes folio, full of plates, is a magnificent book, but of little practical or scientific value. Thomas Hill wrote a sensible book on "Fruit Trees" in 1757. Sir William Chambers wrote "Dissertations on Oriental Gardening" (1744). Johnson in his "History of Gardening" says it is "puerile in the extreme," but with all deference to this great and good man, I must confess to have read it with pleasure, and I think with profit. In 1769 the Rev. William Hanbury wrote "A Complete Body of Planting and Gardening," two volumes folio, and which was published in numbers. Numerous works appeared about this time which it would serve little purpose to enumerate. The early writers on English gardening were mostly scholars who had little knowledge of the subject; the manner was consequently superior to the matter. Later on, when practical men began to write, the matter was superior to the manner. But as education became more widely diffused the union of the two gave us a more satisfactory garden literature.

The "Unconnected Thoughts on Landscape Gardening," by Shenstone the poet, published in 1764, deserve more than a passing word. They were apparently jotted down at intervals while he was carrying out improvements at his beautiful *ferme ornée*, "The Leasowes," and might be read with advantage by some of our modern improvers. Having thus been brought by the sequence of time into the arena of landscape gardening, we propose to diverge here to follow briefly but separately the literature of that branch of the art, although we have no intention of taking part in the combat. The earliest gardens were simply spaces of land enclosed with fences or hedges as a protection against cattle. Then followed formal plans to please the fancy, and for convenience of access to the different objects which the garden contained. Gradually following upon this rose up artistic or landscape gardening. Men wrote little on the subject, and the earliest literature of any importance on this branch of the art seems to have been Lord Bacon's "Essay on Gardens." Later on came the essays of Sir Wm. Temple, Addison, Pope, Lord Kames, G. Mason, and Walpole. Switzer also wrote on the subject about this time from the more practical point of view, while Bridgeman, Kent, and Brown were workers rather than writers. Whateley, W. Mason, and Repton were also distinguished writers on this branch of the art at a still later date, and their works even now take high rank with those of Marshall, Gilpin, Knight, and Price. A fierce controversy raged between some of these writers. Knight and Price on the one side, Repton and Marshall on the other, were in the van of the contending schools; both wrote well, but neither seemed to succeed in making the other understand him, and it seems hardly desirable here to open up the controversy. The chief writings on the subject may be occasionally met with on old bookstalls, and purchased for a few shillings, if anyone should wish to indulge in the luxury of an intellectual puzzle. From this time, however, it may be said that gardening took the position of an art, although many years rolled by before it was elevated to the rank of a science.

To return. John Abercrombie (1744-91) wrote from experience, and his works, which are numerous, had a great circulation and considerable influence on the gardening of his age. It is related of this author that he was invited to write his first book on gardening—"Every Man his own Gardener"—by a London bookseller, and after much hesitation consented to do so, on condition that Dr. Goldsmith undertook the revision of it as to style before publication. Goldsmith consented, but returned the MS. to the publisher, saying the author's style was best suited to the subjects of which he treated. The number of books on gardening continued to increase, many of them published without the author's name. Garton, Weston, Colin Milne, Meader, Bouteher, William Mason, G. Lindley, Bryant, Felton, and Kennedy are names worthy of being preserved. William Speechley wrote "A Treatise on the Culture of the Vine, &c.," (1790); "Treatise on the Pear, Apple, &c." (1796), which in their day were standard works. Dr. Erasmus Darwin is entitled to recognition here as the author of "The Botanic Garden, or Loves of the Plants," (1781-89), a very flowery poem, and of "Phytologia, or the Philosophy of Agriculture and Gardening" (1800).

In 1787 William Curtis commenced "The Botanical Magazine," which has been published without interruption to the present day. This work, which is beautifully illustrated, was for some years edited by Curtis and Sim, then by Sir Wm. Hooker, and is now edited by Sir Joseph Hooker, and although botanical rather than horticultural can hardly be omitted from the literature of gardening. A copy of this work sold three years ago for £92, and a copy this year for £118. William Marshall, who took part in the Knight-Repton controversy on landscape gardening, wrote a good book on "Planting and Rural Ornament" (1796). Forsyth, Maddock, and McPhail are also other writers of this period.

(To be continued.)

PLANTING BOX EDGING.

WHEN reading the article on Box edging by Mr. Molyneux, page 223, it occurred to me that he had made an omission of some importance

immediately after the first clause of the third paragraph. Indeed I think he should have given a little more instruction on getting up the edge, as I suppose he wrote for the benefit of those who are unacquainted with the work. The plan I adopt at this stage of the work—viz., after the ground has been made firm by treading, which, by the way, I have always found necessary even when it was not of a very loose character, is to stretch a line in the exact position, then with a bright spade beat along the line from end to end, being careful not to touch the level stations. By this means the soil is slightly lowered, and the line will then bear on all the levels. If, however, it should be seen that it does not rest on all, high places are sought for and lowered. I then begin at one end and place on as much fine soil as will when beaten down bring the old surface up to the line. Of course the line must be kept tightly strained, and the result will be a firm true top edge, which, to me, seems a very important thing to have in order to finish the work neatly. As to whether the trench is cut perpendicular or slightly oblique may not be of much consequence, but I think the latter is both more easily cut and planted.—T. S.

LEEDS PAXTON SOCIETY.

THE first annual dinner of the above Society was held at the Green Dragon Hotel on the 30th ult. About eighty members and friends sat down to an excellent repast, served in the host's best style. The table was beautifully decorated with plants and flowers, and called forth the highest encomiums from the visitors present. The President of the Society, Mr. Josh. Smith was in the chair, and Mr. J. W. Frankland, Vice-President, occupied the vice-chair. After the usual loyal toasts had been drunk, Mr. J. G. Newsham, in appropriate terms, proposed "The Town and Trade of Leeds," and this was suitably responded to by Mr. J. H. Clark, Secretary to the Leeds Horticultural Society. The Hon. Secretary, Mr. Geo. Hemming, submitted the report, which showed the Society to be in a very prosperous condition, numbering five honorary and 121 ordinary members, with every prospect of this number being greatly augmented. During the year twenty-four essays on different gardening subjects had been read at the meetings, and the average attendance had been thirty-seven. Excursions had been made during the summer to Clumber, Welbeck, Oakworth, and Cliffe Castle, and these had been greatly enjoyed by those participating. An Exhibition of Chrysanthemums was also held on the 10th December (on the occasion of Mr. Garnett reading his critique), and this was of a very high order. The Committee hoped soon to enlarge their sphere of operations, and appealed to members to assist them in furthering the interests of the Society. The balance sheet showed a sum of £8 16s. 8d. in Treasurer's hands.

Mr. B. Whiteley proposed the toast of the evening, "The Leeds Paxton Society." He congratulated the members on the excellent progress made during the year, and predicted that the Leeds Society would become the most powerful organisation of gardeners in the West Riding of York. The President briefly responded, and said from the increased interest taken in the Society's proceedings he was exceedingly hopeful as to its future, and he assured the members generally that everything would be done by the Committee, as far as lay in their power, to further the interests of the Society. The Vice-President proposed "Kindred Societies," and this was responded to by Messrs. Ainley and Bradley. "The Officers of the Society" was given by Mr. Wm. Sunley, Secretary to the Leeds Professional Gardeners' Friendly Benefit Society, who in eulogistic terms referred to the principal ones individually. The President and the Treasurer (Mr. Edward Kay) replied.

Mr. R. Featherstone, Chairman of the Leeds Horticultural Society, proposed "The Yorkshire Association of Horticultural Societies," and expressed the hope that by amalgamation the different societies comprising the union might be the means of diffusing a great amount of knowledge and instruction to their members, and encourage research into the higher walks of the art and science of horticulture. Messrs. Eadon and Slaney responded. "The Essayists," proposed by Mr. W. Crossley and responded to by Messrs. Appleby and Massy. "The Press" was proposed by Mr. Newman and replied to by Mr. Ainley. At the close of the evening's entertainment the greater part of the flowers used in the decoration of the tables were forwarded to the Leeds General Infirmary for the benefit of the patients.

Amongst those attending as delegates from other Societies were Barnsley Paxton Society, Messrs. Ballinger and Northrop; Bradford Paxton Society, Messrs. E. H. Bradley and J. Collier; Leeds Professional Gardeners' Friendly Benefit Society, Messrs. T. Jamieson and Wm. Sunley; Morley and District Paxton Society, Messrs. Ainley and Spencer; Sheffield (Floral and Horticultural) Messrs. J. G. Newsham and Jno. Eadon; Sheffield and Hallamshire Gardeners' Mutual Improvement Society, Messrs. Hall and Slaney; Wakefield Paxton Society, Messrs. B. Whiteley and E. Fenn r.

BIGNONIA VENUSTA.

THIS Bignonia blooms with us very freely during the winter months. Its bright orange red flowers have a particularly cheerful appearance in January, when flowers of almost all colours are scarce. One defect is that it does not keep fresh long when cut; this is regrettable, as it has such a rich appearance when placed in a mass in a vase with its own or other suitable foliage.

The plant grows rapidly, almost too much so, where space is limited, but by judiciously thinning the growths as they are formed flowers in abundance can be had in a small space. Here it is planted in a Cucumber bed along with some Gardenias, which occupy one side of a small Cucumber house; on the opposite side Cucumbers are grown, and the moist temperature required for them in the spring and summer months just suits this Bignonia. It is growing in a compost consisting of two parts loam, one of leaf soil, some charcoal and bones, and it receives copious supplies of water and occasionally of liquid

manure in summer. During hot weather the foliage is vigorously syringed twice a day. The young growths are trained over the pathway in the centre of the house, which is span-roofed, and thus managed they do not interfere either with the Cucumbers or the Gardenias. The strongest shoots are trained thinly on the wires, and all the weaker ones are removed, thus allowing those retained to be thoroughly ripened, and from their points and also from the axils of many of the leaves on the current season's growths, flowers appear in profusion. Brown scale is the only insect which attacks this plant, and an occasional syringing with lemon oil is the best remedy for it; it can also be removed by sponging with soapy water, but when the plant is large this is a slow process.—E. MOLYNEUX.



THE BARRONS, TWICKENHAM.

SOME fine varieties of *Lycaste Skinneri* were exhibited at the Committee meeting of the Royal Horticultural Society on March 8th, especially three or four which were shown for certificates; but though they were not honoured with that distinction some competent judges think them well worthy of that award. Considering the increasing interest taken in collecting and cultivating Orchids, I am surprised that gentlemen, and growers too, do not unite and form an Orchid Society, with a responsible Committee; much good work would be accomplished by its members. There can be no doubt if the scheme was once fairly started there would be no lack of funds to carry the work on successfully.

I am glad to see that *Lycaste Skinneri* is gaining more favour with Orchid growers generally, and certainly the grand show in the houses of Henry Little, Esq., at the present time would convince the most sceptical of its usefulness. They are grown here by the hundred, and among them are some fine forms, many of the plants carrying fifteen and eighteen blooms each, and a few even more, but I could not perceive any two exactly alike. Perhaps the most remarkable feature is the length of time the flowers remain in perfection. One of the first plants to bloom was exhibited in the first week in November last year, and the blooms are still fresh and good. The plants do not suffer in the least with the flowers remaining on so long, for they make larger pseudo-bulbs and flower more freely each year. It is truly a winter flower, and gives charming colour all through the dull months from November till the end of April. The culture is well understood by Mr. Hill, the gardener, who is also very successful with Orchids generally. Large masses of *Cattleya Skinneri*, imported last July, are well established, and showing many sheaths. A fine plant of *C. S. oculata* has fourteen leads; *Cattleya Mendeli*, said to be equal in beauty to that grand variety Duke of Marlborough, has eight flower sheaths; large specimen plants of *C. Mossie* and *C. Trianae*, *C. Eldorado*, *C. E. Leana*, *C. Lawrenceana*, *Laelia elegans Littleana*, *L. purpurata*, and the rare *L. intricata*, supposed to be a natural hybrid between *L. elegans* and *Cattleya amethystoglossa*. Many fine pans of *Cœlogyne cristata*; *Vanda suavis* with eight leads and fifteen flower spikes; large plants of *Cypripedium lævigatum*, *C. Stonei*, *C. Lowi*, *C. niveum*, *C. Lawrenceanum*, *C. caudatum*, *C. Veitchii*, and *Saccolabium Blumci*. *Dendrobiums*, &c., are well represented in fine health and varieties. Besides the show of *Lycastes* in bloom there are *Angraecum citratum*, *A. sesquipedale*, *Cattleya amethystoglossa*, *C. Trianae*, *Cœlogyne cristata*, *C. e. Lemoniana*, *Cypripedium caudatum roseum*, *C. Argus*, *C. Lowi*, *Dendrobium crassinode giganteum*, *D. Fendleyanum*, *Oneidium Cavendishianum*, *Odontoglossum Alexandrae*, *O. blandum*, *O. Littleanum*, *O. nebulosum*, *O. Pescatorei*, *O. Rossi majus*, *O. R. rubescens*, *Phalenopsis amabilis*, *P. Luddemanniana*, and *P. Schilleriana*.—G. W. CUMMINS.

CŒLOGYNE OCELLATA MAXIMA.

SUSPENDED from the roof of the *Cattleya* house at The Dell, Egham, a plant of *Cœlogyne ocellata maxima* has been extremely beautiful for several weeks, and that the variety merits the high praise which has been accorded to it may be judged from the illustration (fig. 49), prepared from a sketch of Baron Schröder's plant. There is a considerable difference between the type originally brought into notice in this country and the variety appropriately named *maxima*, and a comparison of the two is greatly in favour of the latter. *C. ocellata* is a native of Sylhet, it was introduced by Loddiges, and was described and named by Lindley. It was figured in the "Botanical Magazine" in 1839, the plant there represented being a rather poor sample of the species, or as Mr. Williams says, "it was a starved specimen." In that the racemes have three flowers each, and this is the usual character of the type, the flowers being small with narrow spreading white sepals and petals, and a white lip with yellowish spots margined with a darker shade or "ocellated," and which apparently gave rise to another name the plant bears—i.e., *C. punctulata*, though that is rarely seen now.

C. ocellata maxima is an introduction from India obtained by Mr. B. S. Williams of Upper Holloway, with whom it flowered early in 1879, and was shortly afterwards distributed. The flowers are much

larger than those of the ordinary *C. ocellata*, and are borne in much longer racemes, rarely with less than four flowers, and commonly with seven or eight each. The plant figured had seven racemes with five, six, and seven flowers each, gracefully dropping round the pot, but the artist with his usual modesty has scarcely shown so many. Like several others of the genus, this Orchid thrives in a pot with peat and moss, and under Mr. Ballantine's care it seems perfectly at home in the *Cattleya* house suspended near the glass. When resting slightly cooler quarters are more suitable to its welfare.

This *Cœlogyne* is a thoroughly useful plant, and for one quality alone, its agreeable fragrance, it would be worthy of general cultivation. Adding to this its freedom of growth and flowering, and it

centre bed, and have one or two spikes each. Owing to the prolonged severe weather this season the plants are a little later in flowering, but their colours are much brighter than could have been expected, and the three or four thousand flowers produce a most magnificent show. The number of varieties is great, including the best of the older and well tested forms, together with many handsome novelties that have flowered for the first time this season. The progress that has been made in the ten years devoted to the improvement of these plants at Chelsea is astonishing. To realise the advance it is necessary to compare some of the earlier certificated varieties with the recent productions, and it is seen at once that in size, form, and colours the gain is considerable. A dozen standard varieties can, however, be selected that are not likely to



Fig. 49.—*CŒLOGYNE OCELLATA MAXIMA*.

becomes almost as deserving of attention as the popular *C. cristata*, concerning which so much has been written lately.

APRIL IN THE LONDON NURSERIES.

WE have in several previous issues alluded in general terms to the varied displays provided in the leading London nurseries, and a few additional details may now be given to indicate the chief characteristics.

MESSRS. J. VEITCH & SONS, CHELSEA.

The numerous houses devoted to Orchids in this establishment contain as usual ample attractions for visitors. Then there are the houses containing the forced flowering plants, such as Hyacinths, Tulips, Azaleas, Cytisuses, and many other plants which constitute a most effective display. But the great attraction at the present time are the Amaryllises, which are in their best condition. The convenient span-roof house devoted to these contains 2750 bulbs, of which over 1000 occupy the

be readily surpassed—namely, *Empress of India*, *Milton*, *The Queen*, *Wordsworth*, *Colonel Burnaby*, *Lady of the Lake*, *Star of India*, *Sontheby*, *Beethoven*, *Thomas Moore*, *The Giant*, and *Lord of the Isles*. The following is a selection of twenty-four new varieties flowering this season ;—

Emperor.—Bright scarlet, white centre bar, fine shape and substance. An excellent variety.

Rupert.—Intensely red scarlet, grand colour, fine shape. Very handsome. One of the richest and best of its type.

Hermione.—A seedling from one of the scarlet varieties crossed with *Autumn Beauty*. Feathered with rich rosy crimson and margined with pure white, very distinct and pretty. The leaves faintly showing the white central bar of *A. reticulata*.

Her Majesty.—This was certificated at the Regent's Park Show recently. It is white with a few scarlet streaks, very handsome.

Paulina.—Fine shape, scarlet streaks on a white ground ; strong. four flowers in a head.

Rip Van Winkle.—A charming variety, rich dark crimson scarlet, round margin, veined in the centre on pure white.

Favourite.—Another of the improved reticulata type, warm rich crimson with white centre bars.

Empress.—Pure white with a feathering of scarlet. Very large and handsome. This must not be confounded with the older and handsome Empress of India, which is a fine scarlet variety.

Ensign.—Large, with recurved segments, rich scarlet. Four flowers in a head. Very effective.

Diva.—A charming variety, the flowers streaked scarlet, on a white ground. Neat shape and distinct.

Tennyson.—An improved form of a variety bearing this name, with very large flowers and brilliant scarlet in colour. The flowers are 8 inches in diameter.

Brightness.—Bright clear scarlet, and central pure white bars, petals recurving; very showy.

Hortense.—Light orange, central white bars, good shaped flowers, broad petals.

Eurasian.—A neatly formed flower, rich scarlet, the colour extending to the centre.

Keppler.—Bright orange scarlet, the flowers of beautiful form, with broad divisions.

Grandeur.—An excellent scarlet variety, the colour extending to the centre.

Dryden.—White, streaked and shaded with rich rosy crimson, central white bars.

Symmetry.—Orange scarlet, with darker reticulation, white central bar.

Cabello.—Fine form, dark scarlet veined on white ground, white centre.

Titania.—Certificated at the Regent's Park; light crimson purple, very distinct colour, white central bars. Petals $3\frac{1}{2}$ inches across.

Junna.—Very large, light scarlet, handsome.

Casino.—Flowers of great size, scarlet crimson, white central bars, grand shape.

Arcanus.—Brilliant scarlet, flower of good size, not so heavy looking as some of the large varieties.

Dardanus.—Crimson, white bars; rich and beautiful.

MESSRS. WM. CUTBUSH & SONS, HIGHGATE.

For many years an annual display of bulbs and forced plants has been provided during March and April at the above nursery, and the custom is well maintained this season. The Highgate nurseries constitute the head-quarters of the firm, but at Barnet the greatest number of plants are grown, particularly of Heaths, hardwooded plants, &c., for which they are famed. The houses at Highgate are chiefly devoted to select representatives of the more extensive collection elsewhere, and the conservatories at the entrance to the nursery just now contain a bright display of Hyacinths, Tulips, Azaleas, Heaths, and miscellaneous plants, arranged with fine-foliage plants such as Palms, Ferns, and Aralias, the variegated form of *A. japonica* being represented by a number of good-sized handsome plants. The Hyacinths comprise a careful selection of varieties distinguished by their good qualities, and amongst them we note the following—King of the Blues, uniformly good; The Sultan, large bells, dark blue; La Grandesse, exceedingly fine, as it is in nearly all collections; Lord Derby, Czar Peter, Florence Nightingale, Vuurbaak, Linnaeus, King of the Reds, a capital bright colour; Koh-i-noor, fine spike; Cavaignac, handsome pale blue bells; Snowflake and Mont Blanc, white, the latter very pure; King of the Yellows, Bird of Paradise and Ida, yellow; Baron Van Tuyll, dark blue; Madame Van der Hoop, white, large bells, massive spike, a well-known and valued variety; Blondin, pale blue, fine spike; General Havelock, dark blue; Prima Donna, red, large flower, better than it is usually seen; Prince of Wales, purple with white centre; Albus superbissimus, white; and Prince Albert Victor, red, large bells. Of the Tulips a smaller number are shown, but these are good—Ophir d'Or, yellow; Fabiola, rose; Keizers Kroon, scarlet; White Pottebakker, and the white Joost Van Vondel being capital varieties. The yellow Chrysolora, the bright Vermillion Brillant, the purplish Van der Neer, the scarlet Rembrandt, the orange red Hector, the pale pink Rose Gris de Lin, the rosy crimson Proserpine, the purple Wouwerman, and the glowing scarlet Couleur Cardinal, are all notable as useful varieties either for culture in pots or for beds out of doors.

The miscellaneous flowering plants arranged in these houses comprise numerous examples of the indispensable Deutzias, dwarf and standard Lilacs, and Cyclamens. The useful *Staphylea colchica*, now employed so much for forcing, is bearing its graceful white flowers in abundance. Epacris form another specialty with the firm, and have been very beautiful this season, and some varieties like Lady Panmure (white), Wilmoreana (pink, tipped with white), Viscountess Hill (scarlet), Hyacinthiflora (pink, long flowers), and Impressa are still in good condition. Of the free-flowering Heaths, Erica Wilmoreana, E. regiminans, and E. melanthera form a trio of thoroughly useful plants, the last named being one of the best that can be grown, and though differing greatly from the favourite E. hyemalis, it is equally free and of good constitution. Three excellent Azaleas attract attention, two double white—namely, Bernard Andreas alba and Deutsche Pearle, and Madame Van du Cruysen, bright, rich rose. Azalea Deutsche Pearle is a first-rate variety, one of the finest double forms in cultivation, the flowers of good substance, and the petals arranged almost as symmetrically as a double white Camellia. A large bank of Azalea mollis varieties occupies

one side of a smaller house, and with the variegated Aralias already named and some large specimens of Azalea indica, make a brilliant display.

In the other houses are numerous plants of interest. In one is a good stock of the beautiful *Hedera madeirensis variegata*, the leaves having a broad pure white margin, contrasting with the dark green centre. For culture in pots or boxes for training over trellises this is an excellent variety, especially if used with some of the stronger growing green-leaved varieties. A good companion for it is *purpurea*, of which the leaves come with a rich purple hue when out of doors. The charming, fragrant, and graceful *Boronia megastigma* is grown in quantity, for it is always in demand, two or three plants perfuming a large house. To *Pernettyas*, *Camellias*, *Adiantums*, and other Ferns, Palms, and innumerable other plants, several houses are devoted, and the grounds are occupied with large stocks of ornamental shrubs and trees.

MR. B. S. WILLIAMS, UPPER HOLLOWAY.

The large conservatory in Mr. B. S. Williams' nursery has had a remarkably gay appearance for several weeks, one side being devoted to Hyacinths, and the other chiefly to Narcissi, Tulips, and similar bulbous plants. About 500 Hyacinths are arranged together, comprising a large number of varieties, all the best being represented by several plants, so that the uniform good qualities of the variety can be readily judged. Amongst these the following are prominent for their colours, the size of the bells, or the massiveness of the spikes. They are all single except where otherwise stated. King of the Blues, dark blue, handsome spike; General Pelissier, bright red; La Grandesse, large pure white bells, well formed, very constant and good; Lord Derby, pale blue, fine compact spike; Koh-i-noor, pink, large spike; Ida, pale yellow; Princess Helen, pale pink; Charles Dickens, blue, light centre, good spike; King of the Blacks, intensely dark bluish black; Marchioness of Lorne, salmon tinged with pink, neat and good; Norma, delicate pale pink, very large bells, recurving segments, handsome; Baron Van Tuyll, bright rich blue, compact spike; Eclipse, double, bright red; Vuurbaak, bright, good spikes, a useful variety; King of the Yellows, bright clear yellow, compact spike; Obelisque, pale yellow; La Tour d'Auvergne, double white, fine; Czar Peter, pale blue, delicate, good bells and spike; Roi des Belges, light rosy red, very fresh and neat; Mimosa, dark blue; Pieneman, very large drooping bells, loose spikes, bright blue with a lighter margin; Madame Van der Hoop, pure white, large drooping bells; and Grand Lilas, pale blue, compact spike.

In another house a beautiful display is afforded of Cyclamens, Lilacs, *Staphylea colchica*, Azaleas, and *Imantophyllums*. The last named are wonderfully fine, and well show the value of such plants for decorative purposes. Even when out of flower their rich dark green leaves have an imposing appearance, rendering them useful as foliage plants, but when bearing their huge trusses of orange scarlet flowers they have a grand effect. Much improvement has been effected amongst these in recent years, the size and form of the flowers have been particularly improved, the colours have also been varied and intensified. One beautiful variety now flowering is Baron Schröder, others are Cruentum, Meteor, and Ambrose Verschaffelt. Adjoining these is the house appropriated to Amaryllises, of which Mr. B. S. Williams has made a specialty for many years. Amongst numerous varieties two stand out very prominently, one of which has been before the public several years, and the other to be sent out in the present season. They are Dr. Masters and Joseph Broome respectively, similar in shape, very neat, with solid rich colour, but the former bright scarlet and the latter with more crimson. As regards symmetry both are all that could be desired, and the type is an excellent one for cultural purposes, as they are of moderate growth.

In one of the houses some plants of *Ornithogalum arabicum* have been very noteworthy, and the value of the species for forcing and general culture in pots renders it worthy of much more attention than it has yet received in gardens. It must be ranked amongst the old neglected plants, for it was known to several of the old writers on gardening and botany in the seventeenth and eighteenth centuries. A year or two ago its flowers began to be seen in the florists' shops in Covent Garden Market, not, however, from home-grown plants, but from continental growers, and they attracted so much attention that a demand arose for what many regarded as a novelty. The flowers are pure white, the dark shining green ovary in the centre rendering the purity of the petals still more notable. They are borne in trusses on long peduncles, and possess a slight but rather agreeable fragrance. Grown in 48-pots the plants succeed very well, and can be forced into flower soon after Christmas, lasting until far into the spring. When out the flowers are also very durable, an important quality in plants for decorative purposes. The woodcuts (figs. 50 and 51), lent by Mr. B. S. Williams, show the general habit of the plant, and the size of the individual flowers.

The Orchids comprise in the cool house a choice assortment of *Odontoglossums* and *Masdevallias*, with *Ada aurantiaca*, *Sophranitis*, and other useful plants. In the warm houses *Cypripediums*, *Cattleyas*, *Vandas*, *Oncidiums*, *Lycastes*, *Dendrobiums*, and innumerable others contribute their attractions, but to these we shall have occasion to refer at a later period.

THE BIRMINGHAM SPRING FLOWER SHOW.

THE annual Exhibition was held in the Town Hall, Birmingham, March 30th and 31st, and although the entries were not so numerous as previously, owing to a discontinuance of exhibiting by some well-known

growers, and others not being able to exhibit owing to the great demand privately for flowers, &c., for the Queen's visit the week before, this was still to a great extent compensated for by increased size in many of the plants, and good quality ruled throughout the Exhibition.

There are very few prizes open to nurserymen at these exhibitions, only Auriculas, Pansies, Polyanthus, and bouquets, everything else is for gentlemen's gardeners and amateurs. In the class for eighteen Hyacinths, not less than nine varieties, Mr. G. T. Blake, gardener to Henry Payton, Esq., Edgbaston, took the first prize with evenly grown sturdy plants—Czar Peter, Mont Blanc, La Grandesse, Grande Maître, a very fine blue; Marie, Lord Macaulay, and King of the Blues, being all fine. Second, Mr. Morgan, gardener to A. W. Wills, Esq., Wyld Green, who had good examples of La Grandesse, a very fine Koh-i-noor, and two splendid yellows, Obelisk and Marchioness of Lorne. In the class for twelve Hyacinths, Mr. Cooper, gardener to the Right Hon. Joseph Chamberlain, M.P., was first with capital plants of Leonidas, Czar Peter, Grande Maître, and Mont Blanc especially



Fig. 50.—*Ornithogalum arabicum* (reduced).

fine. For six pots of single Tulips, Mr. J. Crook, gardener to W. Milward, Esq., Edgbaston, took the first prize for well-grown specimens of Cerise Gris de Lin, FABIOLA, Keizers Kroon, and Vermillion Brillant, not less than three varieties being the restriction. For six pots of double Tulips, Mr. Cooper was first with distinct varieties, also with six pots of Lily of the Valley.

Dielytras were well shown, Mr. Dyer, gardener to Mrs. Marigold, being first with large plants. Spiræas also were numerous and good, the first prize for six specimens being taken by Mr. F. Cooper, gardener to Charles Showell, Esq. The first prize for the Deutzias, staged by Mrs. Grice, Harborne, were very fine, and the second, from Mr. Dyer, were healthy, but not sufficiently in flower. The Right Hon. Joseph Chamberlain took first prize for six Roses and six Cinerarias. Some excellent specimen Azaleas were staged, Mr. Crook's six being so well done and flowered, Mrs. Grice being second with fair plants, but not sufficiently in bloom. Mr. Crook was also first for three Azaleas. Two grand specimen whites from the Right Hon. Joseph Chamberlain, M.P., took first prize; second, Mr. Crook. Some good plants of Azalea mollis were staged, and some unusually fine specimen Cytisuses. The Cyclamens were good, quite up to the London standard, Mr. Cooper taking the first prizes, as well as for stove and greenhouse plants, and six plants of Primula cortusoides varieties.

Orchids were numerous and in greater force than before, and added materially to the beauty of the Exhibition. In the class for six Chas. Winn, Esq., Selly Oak, who contributed such a large quantity last week for Her Majesty's reception, staged an excellent collection, in which were Cattleya Trianae formosa with five superb blooms, a grand variety; Dendrobium crassinode, Cymbidium eburneum, Cattleya Trianae, Calanthe Rognieri, and Odontoglossum Roezli. A. J. Wills, Esq., came second with Dendrobium crassinode, Oncidium Marshallianum, Cypripedium levigatum, Cattleya Trianae, Odontoglossum Alexandrae, and a fine Dendrobium Wardianum. In addition four fine groups were set up, not for competition, by Mr. Winn, amongst them some fine varieties of Cattleya Trianae, Odontoglossum Pescatorei, Cattleya Mendelli, the upper part pure white, the lower half of the flower bright rose, a beautiful form; Odontoglossum Alexandrae gnttatum, highly coloured; and Oncidium Krameri, were conspicuous. Messrs. Pope and Son, nurserymen and seedsmen, Birmingham, showed a fine collection of Cattleya Trianae, some fine forms amongst them, some Odontoglossum Alexandrae varieties, and some plants of O. Rossi majus. Mr. Cooper also contributed a well arranged group, comprising fine plants of Cymbidium eburneum, Cypripedium niveni, Phalenopsis amabilis, Odontoglossum triumphans, Dendrobium Jamesianum, the rare and beautiful Dendrobium Brymerianum, Aranthis Leonii, with the spur 2½ inches long, but Mr. Latham has a plant in the Botanical Gardens with the spur from 12 to 18 inches long. Another pretty group of Orchids, not for competition, was staged by A. W. Wills, Esq., the most striking being a good plant of Masdevallia Shuttleworthi and Dendrobium primulinum giganteum.

It was much too early for Auriculas, and there was only one exhibitor, Mr. J. Crook, gardener to W. Milward, Esq., whose Alpines were flowering well, but in the other classes some of the varieties were not sufficiently open. In the gentlemen's gardeners' class for bridal and ball bouquets Mr. George Fawkes was first in each class with well-made bouquets. Mr. T. B. Thomson's extra prize for eighteen Hyacinths in pots was won by A. W. Wills, Esq., and for Messrs. L. Smith & Sons' prizes for six dinner

table plants there were four competitors, Mr. Cooper of Highbury taking the first prize. Mr. Hans Niemand's extra prize for six Azaleas in pots not exceeding 6½ inches in diameter, brought forward two excellent exhibits; first, Mr. W. H. Dyer; second, Mr. J. Crook. Messrs. Pope and Jones and Mr. Hans Niemand contributed splendid bouquets, Mr. R. H. Vertegans a fine display of floral wreaths, crosses and anchors; and Mr. T. B. Thomson a fine wreath and a cross, each of a large size. Mr. J. Crook sent a dish of fine Mushrooms, Mr. Hans Niemand a group of plants, in which artistic arrangement was very noticeable. A background of Palms, and in the group an exceptionally fine specimen Aralia Schulherti, 5 feet high, and four very fine Azalea mollis of large size. The remainder of the group was made up of Lilacs, Acers, Clematis, various Narcissus, Ericas, Primula obconica, variegated Fuchsias, Tillandsia zehrina, and other plants. Mr. T. B. Thomson set up a bright handsome group in which Palms, Azaleas indica and mollis, Spiræas, Cinerarias, Crotons, Dracænas, Lily of the Valley, Adiantums, Golden Selaginella, and other plants were used. Mr. Mr. R. H. Vertegans sent some boxes of alpine plants in which the varieties of Saxifraga oppositifolia were conspicuous. Mr. T. B. Thomson also staged a grand group of Cyclamens, Hyacinths, and Tulips. Altogether the Exhibition was one of considerable merit, and the Orchids were an especial feature.

FLOWERS AND GARDENS.

At the Litton Hall, Leeson Park, Dublin, some time since, a very interesting lecture on this subject was delivered by F. W. Burbidge, F.L.S. The Rev. Dr. Maurice Neligan presided. In the course of his remarks Mr. Burbidge said—Once upon a time it was my duty to travel in Borneo, where the natives have a custom of eating rats. An old chief whom I questioned solemnly told me the following story:—"A long time ago," he said, "all our villagers had marvellous crops of Rice. One morning a host of rats appeared and devoured the grain left in the fields. Then the head man arose and said, 'The rats have eaten up our Rice, and now we must eat up the rats.'" And it was so. Now this story you can believe or not, but something of the same kind of philosophy is going on amongst plants to-day. Animals have lived on plants ever since the creation, but it is also true that some plants have begun to turn the tables on the animals by entrapping and eating them whenever they can. As you know, Mr. Darwin has proved beyond a doubt that some plants not only entrap, but actually digest insects or small portions of fresh animal food. But I think it will be a long time ere evolution lands us into an age wherein the plants generally shall enter into a league to eat up all the animals, in the way the Borneans of to-day are trying to eat up all the rats. But it is nevertheless a fact that there are some few plants found in this and other countries, which are all the better for a meat diet now and then.

Of all decorative arts, of all pleasant pastimes, gardening still remains one of the most generally popular to-day; and one reason why it has afforded so much delight, and still remains to us as an attraction, may be found in its ever-changing character. One of the great charms of gardening is the interest it excites, and the amount of pleasure gardeners obtain during their rambles, for I need scarcely say they will be most anxious to see the plants grown in other gardens besides their own. Apart altogether from the decorative or beautiful aspect of flowers and green leaves, such things have a teaching power peculiarly their own, and this is especially so where there are children. One of the best of lessons to instil into the minds of young people is that all flowers are beautiful, for it is these that our greatest poets have most delighted to honour. Daisies, Bluebells, Primroses, Daffodils, Snowdrops, and Violets, wild Roses, and Woodbines, have all been woven into song and story from the time of Chaucer to the days of Tennyson.

The one great charm which lingers round our garden blossoms is their

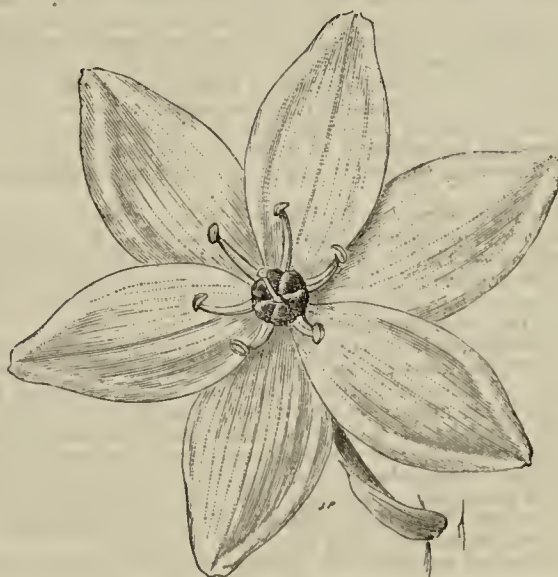


Fig. 51.—*Ornithogalum arabicum* (single flower natural size).

beautiful reality. They are essentially genuine. In art and literature generally the poor man must put up with a makeshift, but a Lily, an Iris, or a Pansy in a cottage garden is as real and as beautiful as if grown in the garden of a Queen. When we come to consider the early history of flowers, as used for decoration or personal uses, we find that the wild or native flowers were first employed. Of course all plants are wild somewhere; other in the world, and the most showy of these were at first selected for decorative uses. The Champaca, Jasmine, Nelmhium, and Orchids of various kinds were so used in India from the earliest times, while in the Western tropics the most beautiful of the native wild flowers were also

employed, long, long before the woad-painted skin-clad Briton saw aught to admire in a wild Rosebud, or in the flowers of Honeysuckle or of Hawthorn. It is very probable that the first of plants ever cultivated were grown for use as food or for their medicinal virtues rather than for their beauty; but in the Herbarium of the Museum at Cairo, also at Kew and the British Museum, may be seen to-day the mummy wreaths of Egyptian flowers culled by hands and woven by fingers that tingled with the love, warmth, and life blood of four or five thousand years ago. The oldest of dried flowers in herbaria—that is, of flowers especially prepared for scientific purposes—do not date back further than the middle of the sixteenth century, and yet we find that flowers were used in Egyptian ceremonies some three or four thousand years ago. About sixty distinct kinds of plants and flowers have been identified, and by placing these in warm water Dr. Schweinfurth of Cairo has succeeded in preparing a series of specimens gathered four thousand years ago. The blue Water Lily or Lotus, the Poppy, the Larkspur, Flax, Charlock, Knapweed, and other flowers are perfectly preserved, the garlands being woven together with strips of the Nile Reed, or Papyrus of the ancient scribes.

I should like to see a garden of not less than a quarter of an acre around every country cottage or dwelling house, and more especially it is to be desired that a garden should be attached to all country and suburban public schools. In France, Germany, and even in Sweden this is to some extent done already with the best results; and I can only hope the day is not far distant when the same may be said of our own public and national schools. Ireland being so peculiarly dependent on land culture for her revenue, I am convinced that elementary horticulture should be more generally made use of as an educational subject of the highest practical or technical value (hear, hear). Nor is this love for cultivated plants and gardens confined to our own country alone, for whoever visits Paris cannot fail to notice the rich profusion of Palms, Dracenas, Cyresses, Ferns, and Daisy bushes or Marguerites with which the windows and apartments there are most tastefully decorated. In Germany, Russia, and also in America the love for beautiful plants and fragrant window flowers is rapidly increasing. Indeed, the knowledge essential is so easily obtained by observation that we can only wonder why every window and balcony is not gay with ornamental plants and flowers for a considerable portion of the year. Sweet-smelling things, such as Lavender, Wallflowers, Thyme, Carnations, Rosemary, and Mignonette should be around every country house; and it is possible that in years to come some part of every town dwelling will be constructed expressly for the culture of plants and flowers within it. A small conservatory or, at least, window cases, as fixtures, will be considered as essential as a good kitchen range or a bath room. At the present time we have a few roof conservatories and gardens, and, doubtless, in time these and other appliances will become universal, especially in towns where space is valuable.

The best evergreen plant for a room is *Aspidistra lurida*, of which there are green and variegated varieties. A specimen here has been grown in a shady window in the Haddington road for the last four years, and when first brought into the house it had six small leaves only, and it has never been repotted or manured during that time. No other plant I know does better, and it is an especial favourite in France and Holland where fresh and healthy evergreen room plants are highly appreciated. The Indiarubber (*Ficus*) is another good room plant, as is also the graceful *Grevillea robusta*. Several kinds of green-leaved *Dracenas* are thoroughly reliable, as also are small plants of the Australian Blue Gum or Fever Tree. I have seen a fine plant of this in the window of a drawing-room in Clare Street for the past three or four years. Some small Palms grow well in warm rooms, and none better than the *Corypha australis*. Another favourite, especially at this season, is the Arum Lily, while the Scarborough Lily (*Vallota*) is very attractive when it throws up its cluster of scarlet Lily-like flowers in the autumn months just before the *Chrysanthemum* comes into bloom. Temperance and good gardening generally go hand in hand. Some at least among the audience here to-night will have observed those cosy Fuchsia-clad cottages which nestle here and there on the Powers Court domain, and from which the occupants get ample supplies of good vegetables and small fruits as well as flowers. Such gardens must prove great counter-attractions to the public-house or shebeen. Another large landed proprietor told me quite recently that his own experience in the building of cottages had proved to him that the addition of a piece of garden ground had a most beneficial influence on the social, moral, and religious life and welfare of the inmates.

Of all modern writers it is Ruskin, as I believe, who sums up the whole substance of our knowledge of plants with one dip of his pen. This is his estimate of them—"Timber for the builder's yard, corn for the granary or the baker's oven, flowers for the bride's chamber, and moss for the grave." In a word, food, shelter, and beauty for all of us, living or dead, is really the sum total of the world's vegetation.

Rev. Dr. Houghton, in moving a vote of thanks to Mr. Burbidge for his interesting and practical address, congratulated the audience on having had the advantage of listening to the remarks and observations of a man who was an expert in his subject—a man whom, he might add, he had the great pleasure and privilege of calling his friend, and who had so much knowledge of scientific botany and practical gardening. *Apròpos* of the Bornean rats, he might say that he had himself been in countries where they eat rats, but, instead of asking the people why they eat rats, he asked them what was the best *ragout* to eat them with, and he then adopted the custom of the country, and enjoyed the rats very much (laughter).

Mr. Wm. Deaker seconded the motion, which was carried with acclamation.

GLASGOW AND WEST OF SCOTLAND HORTICULTURAL SOCIETY.

THE annual spring Show of this Society was held in St. Andrew's Halls on Wednesday, 30th ult. Although the entries were not so numerous as on some former occasions, the general excellence of the exhibits was not inferior to preceding shows. Indeed the Hyacinths, Tulips, and Azaleas were all the most fastidious could desire, and showed great care and skill in staging them in such a high degree of perfection.

Orchids were shown in greater numbers than has been the case for a

long time, and the specimens shown reflected credit on the growers. A word of praise is due in this respect to Mr. Thomas Hogg, gardener to John Gordon, Esq., Aitkenhead, Cathcart. Mr. Hogg has been a most successful competitor for a great number of years, and has never failed to bring forward some choice specimens of the Orchid family, and is doing his best to educate the public into a love of these interesting plants.

The plants from nurserymen greatly increased the interest of the Exhibition. Large specimen Palms, Cycads, and Araucarias were shown by Messrs. J. & R. Thyne, Great Western Nurseries, and also by the same firm a large floral wreath and anchor, very tastefully designed, a department they have quite made their own in Glasgow.

Messrs. Austin & McAslan, Coplawhill Nurseries, decorated the platform, as is their custom at the spring show, many fine varieties of Azaleas, Rhododendrons, Ghent Azaleas, Lilacs, and many other interesting greenhouse plants forming a sloping bank, the giant Palms of Messrs. Thyne making a splendid background. Messrs. Smith & Simons, Kennishead Nurseries, filled a table 24 feet by 6 feet, most admirably arranged. Rhododendrons and Azaleas were in good bloom and of the finest variety. Azaleas Marquis of Lorne, Flambeau, Empress of India, and François Vervaene were well shown. This collection was highly commended.

Mr. John Sutherland, Victoria Nursery, Lenzie, was the largest exhibitor of bulbous plants, carrying off all the honours in the nurserymen's class. He had first for a collection of bulbous plants in bloom, table 12 feet by 6 feet, far surpassing similar collections of former years. A splendid table of Hyacinths, Tulips, Daffodils, Palms, &c., was also put up by him and was very highly commended. The prize for eighteen Hyacinths was also secured by him. The spikes were very even and the foliage as it should be. Some of the best were La Grandesse, Mont Blanc, Princess Amalie, Koh-i-noor, King of the Blues, Garibaldi, and Lord Derby. Mr. Sutherland was also first for twelve table plants, *Pandanus Veitchi*, *Aralia Chabrieri*, and *A. Veitchi* being favourite plants for this purpose. Mr. J. B. Young, Bridge of Allan, exhibited a plant of *Dendrobium Wardianum* and a choice assortment of cut Orchids in basket, the most conspicuous being a splendid variety of *D. Wardianum*. In the class open to all Mr. Geo. Meston, Murciar House, Pollokshields, had first for specimen Tree Fern. Mr. W. B. McNeill, 3, Willowbank Crescent, was first for hand bouquet; Mr. Alex. Raeside, gardener, Yorkhill, second; and Mr. Walter Buchanan third. A bouquet of splendid flowers was disqualified as it was built on a clay mould, certainly not a desirable addition for a lady to carry.

Gardeners' and Amateurs' Class.—Collection of stove and greenhouse plants to fill a table 12 feet by 6 feet. The first prize was deservedly awarded to George Meston. Two splendidly bloomed plants of *Dendrobium nobile* were conspicuous. Mr. James Clotworthy, gardener, Langside House, was a good second. For six stove or greenhouse plants Mr. Wm. McLachlan, gardener, Violet Bank, Langside, had first place; he also secured first prize for three stove or greenhouse plants, three specimen Azaleas, first for *Roi Leopold*, Mrs. Turner, Duc de Nassau, and one specimen of *Azalea amoena*, Messrs. T. Hogg and J. Clotworthy being second and third in the order named. For three specimen Orchids Mr. Thos. Hogg was first, a well-flowered *Dendrobium albo-sanguineum* attracting much notice. For three Azaleas in 8-inch pots Mr. Hugh Miller, gardener, Langside, was first; Mr. Thos. Hogg, second; and Mr. James McCrae, Scotstown House, third. Three hardy Rhododendrons, Mr. Thos. Hogg, first. Three Ferns, distinct varieties, Mr. Geo. Meston was first with good specimen of *Gleichenia dicarpa*, *G. Spelunca*, and *Adiantum Williamsi*. For three *Amaryllis*, Mr. Thos. Hogg was first. With six plants for table decoration Mr. James McCrae had the first place, Mr. Alex. Raeside being a good second. Chinese Primulas were fine. The first prize was awarded to Mr. Wm. Thorburn, gardener, Castle Semple; Mr. Wm. Cowan, gardener, Killehan House, Campbelltown, second; and Mr. Thos. Hogg, third. Mr. James Clotworthy was first for specimen *Deutzia*, a very fine plant, and Mr. Wm. McLachlan second. The class for twelve Hyacinths was well competed for, six being staged. First honours went to Mr. Donald McBean, gardener, Craigends, Johnston, with superb spikes of the following varieties—viz., *The Sultan* (which was probably the best spike in the Exhibition), *Leoidas*, Howard, Mimosa, Lord Wellington, Grand Lilas, Baroness Van Tuyl, King of the Blacks, Florence Nightingale, Lord Macaulay, Blondin, and Charles Dickens; Mr. Robt. Millar, Netherhill, was second; and Mr. Hugh Millar, Pollokshields, third. For six double Hyacinths, distinct varieties, Mr. George Irvine, gardener, Italian Villa, was first with good examples of *Koh-i-noor*, *Blocksberg*, *Van Speyk*, *Lord Wellington*, *Garrick*, *La Tour d'Auvergne*; Mr. Hugh Millar was second; and Mr. John Mathieson, gardener to J. L. Henderson, Esq., Partick, third. Six single Hyacinths, distinct varieties: Mr. John McInnes had first with good spikes of *La Grandesse*, *Koh-i-noor*, *Mont Blanc*, *King of the Blue*, *Gigantea*. In the class for three pot Hyacinths, three bulbs in each pot, Mr. Hugh Millar had first, and Geo. Meston the second place. For the best arranged and most meritorious basket of spring flowering plants Mr. Hugh Millar was first, and Mr. Thomas Leslie, Lenzie, a good second.

With four pots of Tulips Mr. Thomas Hogg was first; second went to Mr. James Heron, Pollok Gardens; and Mr. Alex. Raeside, third. For three pots single Tulips Mr. James Heron had first; Mr. Thos. Hogg, second; and Mr. John Mathieson, third. The Tulips were a fine show, the variety *Proserpine* being shown to great perfection. Four pots *Polyanthus Narcissus*: Mr. Hugh Millar, first, and Mr. James Heron, second. The *Narcissi* were very much behind those of former years. Four pots of Crocuses: Mr. Hugh Millar, first; and Mr. Alex. Raeside, second. Six Alpines in flower, distinct varieties: Mr. John Meiklem, 19, Hope Street, first; and second, Mr. John Nicol, Paisley. Poor compared with former years. Three *Spiræa japonica*: Mr. Geo. Meston, first; Mr. Wm. Gowan, second; and Mr. James Heron, third. Two pots or pans *Lily of the Valley*: Mr. Hugh Millar, first; Mr. James Heron, a good second; and Mr. Wm. Gowan, third. For three pots, not exceeding 6 inches in diameter, Mr. Wm. Gowan had the first place; Mr. James Heron, second; and Mr. Hugh Millar, third. These were extremely well shown.

Cut Flowers.—Six blooms *Camellias*, distinct varieties: Mr. G. Harris, Crossford, Lanark, first; Mr. Wm. McLachlan, second; and Mr. Thos. Hogg, third. Six trusses hardy Rhododendrons: Mr. Hugh Miller, Mr. Wm. Cowan, and Mr. Thos. Hogg, were first, second, and third in the order named. Collection of vegetables in season, eight varieties: James

Heron was first with splendid Brussels Sprouts, Rhubarb, French Beans, Seakale, and Parsnips; Mr. Donald McBean was a good second, the size of his Leeks being something extraordinary. Amateurs only.—Amateurs made a very creditable display. For two stove or greenhouse plants, distinct varieties, Miss M. Hodge, 38, Aytoun Road, Pollokshields, was first; Mr. John Nicol, second; and Mr. John Gordon, jun., 51, Main Street, Ruberglen, third. Mr. Samuel Allison, 8, Allison Street, was first for one specimen Azalea; Mr. Wm. Watson, Rutherglen, second; Mr. John Gordon, jun., third. Three plants for table decoration was won by Mr. G. C. Gordon, Knightswood, with handsome plants; Mr. Henry Dixon, Maryhill, second; and Mr. John Gordon, jun., third. For the specimen *Deutzia* Mr. John Nicol was first; Samuel Allison, second. Mr. G. C. Gordon had first for *Cyclamens*; Mr. Wm. Barrie, Hamiltou, second; Mr. John Nicol, third. Mr. John Campbell had first for two Ferns; Mr. John Nicol, second; Mr. John Gordon, jun., third. Two *Cinerarias*: Mr. John Nicol, first. Six *Hyacinths* in pots were well shown by Henry Dixon, for which he had the first prize, Mr. Wm. McIntosh, 2, Pirpark Terrace, Dennistoun, had second, and Mr. John Smellie, Langrigg Farm, Mearns, third. For three *Hyacinths* in pots Henry Dixon had first, Mr. McIntosh had second, and John Smellie third. Same very good spikes were shown in these, but the foliage in some instances was considerably drawn. For three *Hyacinths* grown in water Mr. Wm. Sharpe, 21, Herriot Street, Pollokshields, was first with splendid spikes, and Mr. Jno. Nicol second. Mr. Henry Dixon had first for two pots *Tulips*; Mr. Jno. Nicol, second; and Mr. Wm. McIntosh, third. Mr. Samuel Allison had first for two pots *Polyanthus Narcissus*; Mr. McIntosh, second; and Mr. Jno. Nicol, third. Mr. G. C. Gordon had first for two pots *Crocus*; Mr. Wm. McIntosh, second; Mr. Henry Dixon, third. For two pots hardy *Primulas* Mr. John Meiklen had first; Mr. Jno. Nicol, second; Mr. G. C. Gordon, third. Mr. Samuel Allison was first for two pots *Spiraea japonica*; Mr. G. C. Gordon, second; Mr. Henry Dixon, third. For two pots *Lily of the Valley* Mr. Henry Dixon had first, and Mr. Jno. Nicol second. Open to ladies only.—One *Hyacinth* grown entirely in water, Miss L. Sutherland, Lenzie, first; Miss Sharp, 21, Herriot Street, second; and Mrs. Leslie, Kirkintilloch Road, Lenzie, third. Mrs. Leslie gained first for two pots *Dutch bulbs* in bloom, and Miss Hutcheson, Paisley, second; and for three *Hyacinths* grown entirely in water, Miss A. Millar, Botbwell, had first; Miss Sharpe, second; and Miss Sutherland, third. Mr. James Bryson, Parkend Nursery, Helensburgh, showed a number of *Roses* in pots very well bloomed, a plant of *Chas. Lawson* being very well grown; a splendid stand of cut blooms, particularly good for this time of year, *Niphetos* being extra fine; the stand was most tastefully decorated with nice trusses of red and white double *Hawthorn*, altogether a most meritorious collection. Mr. Frank Gibb Dougall, the energetic Secretary of the Society, as usual superintended the arrangements, which were admirably carried out under his direction, to the satisfaction of all.—G. R.

NEW PLANTS OF 1886.

(Continued from page 257.)

Inf., Inflorescence.—*L.*, Leaves.—*Fl.*, Flowers.—*Fr.*, Fruit.—*H.*, Hardy.—*H.H.*, Half-hardy.—*G.*, Greenhouse.—*S.*, Stove.—*Per.*, Perennial.—*Shr.*, Shrub.—*In.*, Inches.—*Lin.*, Line = One-twelfth of an inch.—*Fl.*, Foot or Feet.—*Diam.*, Diameter.—*Pet.*, Petals.—*Sep.*, Sepals.

N.B.—Unless specified, all Orchids may be considered to be stove epiphytes.

NERINE FLEXUOSA, var. *SANDERSONI*. (*G. C.* xxiv., p. 779.) *G.* bulb, differing from the type in its stouter peduncles and pedicels, broad l., and the less crisped perianth segments which are more united into a cup at the base. *S. Africa*.

NERINE MANSELLI. (*G. C.* xxv., p. 101.) A fine hybrid between *N. flexuosa* and *N. Fothergillii*, with bright green l. $1\frac{1}{2}$ in. broad, and a 10-20-flowered umbel of bright rose-red fl. Garden hybrid.

NERINE SARNIENSIS, var. *PLANTI*. (*G. C.* xxiv., p. 779.) *G.* bulb. A variety with dull crimson fl., and more distinctly clawed segments.

NEUMANNIA ARCUATA. (*R. H.* 1886, p. 108, with plate.) *Bromeliaceae*. *S.* epiphyte. An ornamental species of distinct character, with petiolate lanceolate acute l. $2\frac{1}{2}$ -3 ft. long, 3-4 in. broad, the petioles spiny; fl.-stem arching, as long as the l., clothed with lanceolate bracts, which are brownish-red on the lower part of the stem, and bright carmine on the narrow cylindrical flower spike. Fl. 3 in. long, calyx carmine and yellow; pet. pale yellow. *Andes of Columbia*.

NIDULARIUM RUTILANS. (*B. H.* 1885, p. 81.) *Bromeliaceae*. *S.* This is distinguished from the other known species by its vermilion-red fl., which are disposed in a contracted panicle nestling among the bract-leaves, which are of a beautiful red, shaded with rose. The smooth l. are spotted with dark green. *Brazil*.

ODONTOGLOSSUM ASPERSUM, var. *SPILOGLOSSUM*. (*G. C.* xxv., p. 456.) *Orchideae*. A variety with a lobed lip marked with brown blotches.

ODONTOGLOSSUM CONSTRICTUM, var. *CASTANEUM*. (*G. C.* xxiv., p. 712.) A variety with brown sep. and pet., having one or two greenish-white lines at the base.

ODONTOGLOSSUM CORDATUM, var. *KEINASTIANUM*. (*G. C.* xxv., p. 456.) A variety remarkable for the few broad blotches on the sep. and pet. The lip is very dark brown in front.

ODONTOGLOSSUM CRINITUM, var. *SAPPHIRATUM*. (*G. C.* xxv., p. 752.) A fine variety, having the white lip covered with light mauve-bluish spots.

ODONTOGLOSSUM VEXILLARIUM, var. *ALBUM*. (*W. O. A.*, pl. 227.) A variety with white fl., marked at the base of the lip with light yellow. *Columbia*.

ODONTOGLOSSUM WILCKEANUM, var. *ALBENS*. (*L.*, pl. 35.) A very handsome plant, with a fine raceme of showy fl. $2\frac{1}{2}$ -3 in. across, white, handsomely blotched, and spotted with red-brown, and having a yellow area at the base of the lip. Sep. lanceolate acute; pet. broadly ovate, very acute, toothed on the margins; lip pandurate, with crisped margins. *Garden hybrid*.

OLEARIA MACRODONTA. (*G. C.* xxvi., p. 304 and 305, f. 62.) *Compositae*. *H.* An exceedingly ornamental free-flowering shr. or tree, with elliptic-oblong, undulate, coarsely toothed l., somewhat Holly-like in appear-

ance; and large hemispherical corymbs of small Daisy-like white fl. *New Zealand*.

OLEARIA NITIDA. (*G. C.* xxvi., p. 44 and 45, f. 10.) *H.* shr. of ornamental character, neat and compact in habit, and free flowering. L. elliptic acute, with 3-4 teeth on each side, silvery tomentose beneath. Fl. heads radiate, in compact corymbs, white. *New Zealand*.

ONCIDIUM HUBSCHII. (*G. C.* xxiv., p. 650.) *Orchideae*. One of the pyramidal group, with a much-branched panicle of yellow fl. with a brown tint, the lip is narrower in front than at base; its chief mark consists in the bipartite orange-coloured column-wings. *Ecuador*.

ONCIDIUM LEPTURUM. (*G. C.* xxv., p. 41.) One of the group with tufts of abortive fl. The properly formed fl. are light yellow, spotted with brown. Sep. and pet. cuneate-oblong, acute. Lip with a very broad heart-shaped base, narrowed into a small bifid apex, at the base is a cushion of finger-like calli.

ONCIDIUM PARDOLOSUM. (*G. C.* xxv., p. 617.) An interesting species, with narrow chestnut-coloured fl., much marked with yellow on the lip, and having a very obscure yellow band on the dorsal sep. The column is very long, light yellow, with brown-purple wings.

ONCIDIUM POLLETTIANUM. (*G. C.* xxvi., p. 326.) A fine showy species, with a many-flowered raceme of large fl. The lateral sep. are connate and two-toothed at the apex, dorsal sep. oblong acute; they are yellow, with brown bands. Pet. brown with yellow borders. Lip with small roundish auricles at the base, a long narrow neck, and broad 4-lobed blade, the outer lobes broadest, colour not stated.

ONCIDIUM SARCODES, var. *DISCOIDALE*. (*G. C.* xxv., p. 488) A trifling variety without spots on the front lobe of the lip.

ORANEA NIVEA (*Cat.*, *C. C. d'Hort.*, p. 8.) *Palmæ*. *S.* Palm of vigorous growth, with large shining green l., white on their under surface.

ORCHIDANTHA BORNEENSIS. (*G. C.* xxvi., p. *Cat.*, *C. C. d'Hort.*, p. 7.) *Scitamineae*. *S. per.* A very remarkable and interesting plant, resembling a dwarf *Heliconia* in foliage, but with fl. resembling those of an *Orchid*. It is of dwarf habit, with elliptic-oblong acuminate, bright green l. 6-8 in. long by $2\frac{1}{2}$ -3 in. broad, on petioles 5-10 in. long. The fl. are produced in short spikes close to the ground. Sep. narrow linear-lanceolate, acute, 1 in. long, yellowish at base, purplish towards the apex. Pet. linear obtuse aristate, $3\frac{1}{2}$ lines long, blackish-violet. Lip linear-acuminate, 1 in. long, blackish-violet. Stamens 5. *Borneo*.

ORIXA JAPONICA (*Gfl.* t. 1232.) *Rutaceae*. *H.* shrub, with oblong, acute, slightly bullate, dark green l. 1-1 $\frac{1}{2}$ in. long, and racemes of inconspicuous green fl., arising from the sides of the branches some distance above the leaf-axils. *Japan*.

OTTELIA OVALIFOLIA (*R. H.* 1885, p. 469; *G. C.* xxv., p. 753, f. 165.) *Hydrocharitaceae*. *S.* aquatic, with a spreading rosette of elliptic-oblong floating l., something like those of *Aponogeton distachyon*, and large white fl. with numerous yellow stamens. *Australia*.

PALICOUREA JUGOSA. (*Bull Cat.*, p. 8.) *Rubiaceae*. *S.* shr., of ornamental character, with opposite elliptic-oblong, dark satiny green l., with depressed midrib and veins; under-surface purple. *Brazil*.

PANCRATIUM PARVIFLORUM. (*Gfl.* 1885, p. 310.) *Amaryllidaceae*. *G.* bulb. A small flowered species, with broad linear acuminate l. about a ft. long; a scape that is shorter than the l.; and a 7-8 flowered umbel of white fl., $1\frac{1}{2}$ in. in diam. The stamens have a broad base with an erect tooth on each side.

(To be continued.)



KITCHEN GARDEN.

POTATOES.—Planting the second earlies was quite stopped recently, but it may be resumed and finished as soon as possible. Nothing is gained by close planting, 2 feet between the rows and 18 inches between the sets being the best distances. The Potatoes succeed on heavy wet soil, and light manure suits them better than adhesive soil. We are about to clear off a large piece of Brussels Sprouts, when a good dressing of hotbed manure will be given to the soil previous to planting with Potatoes. In this instance the ground will not be dug first and planted afterwards, but planting will be done as digging progresses. This is a quick way of putting in crops, and it answers well when the soil is thoroughly broken up as it is turned. Frame Potatoes are now yielding heavily. Those planted in a south border a month or more ago are peeping through, and as a few good days will bring up large numbers of them care should be taken that a little soil is drawn over the growths with a drag hoe until all danger of frost is past. It is astonishing how much protection this affords. We have saved our first Potato crop repeatedly in that way.

VEGETABLE MARROWS.—Where these can only be grown in the open air the seeds need not be sown too early, and the present is a suitable time to raise plants to be placed out by the middle or end of May. Fill a number of 3-inch pots with good soil, make two or three holes in each with the forefinger, drop a seed into each, cover with soil, and place them in any dry pit or frame. Robust plants are soon produced in a temperature of 60°. We do not approve of raising them in too much heat, as they are often weak. Where frames are becoming empty from digging Potatoes and other early vegetables, a few Vegetable Marrow seeds may be sown in the centre of the lights, and with a little protection until May early fruits will be obtained. We have ceased to cultivate large Marrows, as being coarse and not very prolific, while

the small ones, like Pen-y-byd, are extremely free and of first-rate quality.

CARROTS.—Those in frames are growing rapidly and require frequent attention in thinning. Some may think that the closer they are grown the more plentiful will be the supply. That is a mistake, as closely grown frame Carrots invariably fail to make roots freely or well, and the most profitable beds are those which are never allowed to become crowded. We begin thinning our plants when they are about 1 inch in height, and they are thinned more and more if necessary until they are almost ready for drawing for use. Some of our readers have been anxious as to the condition of their Horn Carrots that were sown in the open before the recent frost and snow came; but judging by the free way our crops are showing on a south border there is no danger of their failing. The seed for the main crop of Carrots should be sown as soon as the weather will allow. James's Scarlet Intermediate is the best variety for a general crop, and Sutton's Improved Intermediate is a useful sort. The soil for this crop should be rather of a light character, free from rough manure and containing no worms. We have a large quarter that produces admirable Celery and good Carrots. The place the Carrots occupied last year will be given to Celery this time, and *vice versa*. This system has been followed for years with the best results, and as the Celery is always heavily manured, as well as receiving liberal additions of sand and ashes in being earthed up, it comes in well for the Carrots afterwards without further dressing, excepting applying a quantity of lime, gas lime, soot, or salt to make sure of destroying the grubs. The main crop rows may be 15 inches apart, the seed being about 1½ inch below the surface, and the whole rolled after sowing and covering.

CELERY.—Our crop of last year is drawing to a close, and preparations are being carried on to get the new crops on as quickly as possible. The early plants which have been raised in heat should be hardened as soon as they attain a height of 3 inches or 4 inches. Keep them near the glass, well in the light, and on no account allow them to suffer by want of moisture at the roots. Through close attention to this point we have not lost a plant by seedling prematurely for many years, but the plants in question will be ready for use in August, and they will be over by November, and a quantity of seed should be sown at once to produce plants which will maintain the supply during the winter. This may be termed the main crop of Celery, as the next sowing will be made to procure plants for late spring use. A few 6-inch pots or an old cutting box will raise as many plants as will plant out many trenches. Sow good seed thinly, let it germinate in a temperature of 60°, and give the plants plenty of air from the time they come through the soil.

LETTUCE.—So long as the weather is cold and wintry the majority of people do not think of using Lettuces, but when the warm weather sets in the demand commences, and there need be no difficulty in having abundance. Seed to yield Lettuces in June and July should be sown at once. A little patch in any favourable spot in the open ground will soon produce many plants, and we never think of sowing our Lettuce seed anywhere after this time, but in the open ground. Stir the surface of the soil between advanced Lettuces from seed sown last autumn, and plant out those which were reared under glass this spring. Place them in rich soil and a sunny position, and they will be large, crisp, and tender in a few weeks. We are just planting out promising Lettuces of the Early Paris Market variety.

TOMATOES.—Give those maturing fruit abundance of liquid manure. Pot a successional batch. Give those intended for open air culture more root room, and keep them in a temperature which will induce them to grow, as it is a great advantage to have open air plants to a good size before placing them out.

RADISHES.—Those in frames are advancing freely. They bring a good price in the market and are very acceptable at the table. There should not be any falling off in the supply now, and a little bed of seed should be sown once a fortnight. Make the surface very firm after sowing, and see that birds do not pick up the seed or pull out the young plants.

KIDNEY BEANS.—Cooling's Ne Plus Ultra has been our best variety under glass this spring. It is excellent, being compact in growth and very prolific, but those who have plenty of them now and more plants coming on may be inclined to think that they need sow no more under glass, as the open air crops may soon be placed in; but this is not correct, as it will be the end of June before the open air crops bear fruit, and all plants in leaf now under glass will have finished fruiting before that time. It is therefore necessary to sow more seed under protection, and if in any old boxes or empty frames many pods will be produced before those in the open air are formed. Kidney Beans are now so easily grown under glass that everyone who owns a frame should try a batch.

FRUIT FORCING.

PINES.—The suckers or plants which were started early in March now require attention. The pots must be full of roots, but before the plants are root-bound shift them into the fruiting size, watering them a day or two previously so as to have the soil moderately moist when they are potted. They may be shifted into 10, 11, or 12-inch pots. Take advantage of the removal of the plants to examine the bed, replenishing it if needed by the addition of fresh tan, mixing it with the old to a depth that will afford the temperature required—viz., 95° at the base of the pots until the roots reach the sides, when 90° is more suitable. Keep the air about such plants well charged with moisture during the time the house is closed, employing no more fire heat than is absolutely necessary to maintain a night temperature of 70° to 75° on mild nights.

Ventilate slightly at 80°, liberally at 90°, closing with sun heat at 85°, at which time syringe the plants. This treatment will be available for fruiting plants, except such as are in bloom, which should not be syringed. Examine the plants twice a week, and water those that require it.

STRAWBERRIES IN POTS.—The weather until lately has been very unfavourable for plants in flowers, which are liable to get chilled by an influx of cold air acting directly on the flower, as is the case with plants on a level with the ventilators. It is well when the ventilators are above the plants or beneath the pots; in such positions we have the Strawberries doing well, whilst those on a level with the ventilators are doing as indifferently. In dull and wet weather it is well to shake the flowers occasionally when the pollen is ripe, and where fine fruit is wanted it is desirable to thin the flowers, leaving from eight to a dozen on a plant, and selecting the boldest for retention, which are usually the first to expand, the centre fruit of the truss being usually the largest, and not unfrequently cockscomb-shaped. It is also advisable to thin the fruits after they are fairly swelling. We find that if we have a dozen or more fruits to a plant, about a third are fairly good fruit and the others small, the total weight being no more than when the fruits are thinned to half-a-dozen. Fruit of 1 oz. weight are useful, but the larger the better, though we have not had them exceeding 2 ozs. weight from pots, and only once had twelve fruits weighing a pound before June. Colour must accompany size in a forced Strawberry. This makes Sir Charles Napier so esteemed for market, and La Grosse Sucrée will bring far more per pound than President. There is no question that appearance has a great deal to do with fruit, whether for home use or marketing.

The great secret in forcing Strawberries is keeping them properly supplied with water. They should be examined twice a day, and in bright weather three times, and any wanting water must have it liberally, giving liquid manure two or three times a week when the fruit is swelling. There is nothing like slow and progressive growth for Strawberries up to and past the flowering, then they swell best in a high temperature and moist but not very confined atmosphere. Hard forcing does not suit such varieties as Dr. Hogg and British Queen, they with Cockscomb being the best late varieties for forcing. Sir Joseph Paxton and President are excellent for home use, but they do not take in the markets, and they will not bear forcing to anything like the extent of La Grosse Sucrée, Vicomtesse Hericart de Thury, Keen's Seedling, &c., and later Sir C. Napier and even Marguerite are superb. We grow Strawberries (five thousand) in all our fruit houses, and have two shelves in each house. One shelf is occupied with an early variety and the other with a mid-season sort, or a midseason and a late variety respectively, so that there is no break in the succession. A house 100 feet long gives a number of Strawberries. In the later batches the trusses are coming very strong, and with them green aphides, which must be kept under by fumigation.

CHERRY HOUSE.—If the trees are heavily laden with fruits the demand for nutriment will be greater, as such trees will be less vigorous than those with fewer fruit, and whilst the former will be benefited by the application of liquid manure, the latter should have clean water. A good soaking of those elements most suited to the requirements of the trees should be given, and as often as required, to maintain the soil in a thoroughly moist condition. Inside borders are most suitable for fruit trees subjected to early forcing, as they afford a better temperature, more corresponding to that in which the trees are growing, and rendering the progress of the crop more certain and satisfactory, provided due regard is paid to affording the needful supplies of water. Attend to ventilation and temperature as advised in our last calendar, syringing the trees twice every day, and keeping the surface of the borders constantly moist. As soon as the shoots have made four or five joints they should have the points pinched out so as to form spurs, but those required for furnishing the trees should be tied in position early and be carefully trained in their full length. Aphides must be kept under by repeated fumigation, as if they obtain much hold they are not only difficult to exterminate, but spoil the appearance of the fruit.

PLANT HOUSES.

Tree Carnations.—If sufficient cuttings have not been already rooted for the supply of flowers during the autumn, winter, and spring, a number should be inserted at once. To insure a good strike select firm sturdy cuttings from plants that have been grown under cool conditions. Cuttings from plants drawn weakly in a close atmosphere will nearly all fail, so that if plants are in this condition, thoroughly harden them before an attempt is made to strike them. Firm, sturdy cuttings will root as freely at this season, if inserted in cocoa-nut fibre refuse, where a night temperature of 65° can be maintained, as they will under bell-glasses and handlights. The cuttings must be dewed occasionally and shaded from the sun. It is useless to insert them in a structure that is not kept perfectly close; under such conditions they must be under bell-glasses. Directly they are rooted, place them singly in 2-inch pots, in a compost of leaf mould and loam in equal proportions, with a liberal addition of silver sand. If returned to the same structure for ten days or a fortnight they will commence root growth in the new compost. They may then be removed to a vinery at work, where the temperature does not exceed 60°, and from this position gradually hardened to cold frame treatment. A good method of preparing them for cool treatment is to make a slight hotbed in a frame, and either stand them on the surface or plunge them in it. By this treatment the plants can be hardened without the risk of checking them. A number rooted now will make excellent plants in 6-inch and 7-inch pots for flowering next spring.

Mignonette.—Where plants trained as standards on trellises are required by the end of October, sow the seed at once. Two-inch pots perfectly clean should be drained and filled with a mixture of good loam, leaf mould one-third, one-seventh of cow manure passed through a sieve and sand. A few seeds may be sown in the centre of each, covered with fine soil, and the pots placed in a temperature of 60°. Under these conditions the seed will quickly germinate, and when large enough the best plant may be selected and the others pulled out. If pyramids are required, the seed may be scattered thinly over the surface of the pots and four plants selected, one in the centre for leading upright, and the remainder near the side of the pot. One plant will make a good specimen in a season, but four will make a larger one in less time. From the present time there should be an abundant supply of fine spikes, if plants have been wintered well. Arrange those on trellises on a stage containing moisture-holding material, for on a dry stage or in dry atmospheric conditions the foliage will not long retain its green, healthy appearance. Be careful that these plants, in whatever stage of growth they may be in, do not suffer by an insufficient supply of water at their roots. All that have been in their pots since last spring should have a little artificial manure applied to the surface at intervals of a fortnight. Clear soot water is very beneficial, and may be given every alternate time water is needed. Those in 6-inch pots in frames must have abundance of air on all favourable occasions to insure strong sturdy growth, which is the secret of large fine spikes of bloom. If the plants are coming forward too rapidly to keep up an unbroken supply until plenty can be had from outside borders, pinch the whole of the blooms from them, and induce the plants to make fresh growth by keeping them close for ten days or a fortnight.

Rhodanthes.—To form a succession to those sown some time ago, and which are now about an inch high, sow seed at once. Fill the required number of 5-inch pots with any moderately light fertile soil, and scatter the seeds thinly over the surface, so that the plants will be about half an inch apart, cover with light soil, and place the pots in a temperature of 50° until germination has taken place, when they may be grown in cold frames. From seed sown now the plants will be ready for decoration in three months. If a few seeds are sown at intervals of four or five weeks until the end of July a good supply of plants suitable for decoration can be obtained.

Statice Sumoroni.—When well grown this is one of the most serviceable annuals for various decorative purposes. We have found that the young plants are seriously checked by sowing the seed in a pan, pricking them out singly into others, and finally transplanting them into pots. The best method of culture is to sow two or three seeds in the centre of 2-inch pots, only just covering the seeds, placing them in a temperature of 60° until the young plants show signs of active growth, when they should have intermediate treatment. By the time they have filled the small pots with roots they will do in cold frames. This position may be accorded them from the time they are transferred from the small into 5-inch pots. After potting they should be kept close for a fortnight, and then grown cool. From seed sown now beautiful plants will be had fit for any purpose by the end of June or early the following month. They do well in good loam, one-third leaf mould, sand, and one-seventh of decayed manure. When first placed in their largest pots they must be very carefully watered.

FLOWER GARDEN AND PLEASURE GROUNDS.

Work in Shrubberies.—Directly it is found that the ground will work fairly well no time should be lost in completing the work of planting, transplanting, and thinning out. If a new shrubbery is formed the site ought first to be drained if at all cold and damp, and then well and deeply broken up. A series of holes dug in comparatively solid ground, and only just large enough to hold the roots of the trees and shrubs, may be the quickest way of forming a plantation, but very rarely indeed will trees or shrubs make any real progress under such conditions. Where single specimens are planted let the holes be double dug and of a much greater diameter than the present spread of roots. None of the poor subsoil, especially if it be of clayey nature, should be brought to the surface, but it may frequently with advantage be well broken up and made more congenial to the roots by the addition of any decayed or decaying material. Our old heaps of decayed grass from the mowing machines, as well as leaf soil from the woods and shrubberies, are freely added to the fresh soil, and this appears to just suit the trees and shrubs. A little good soil ought always to be disposed about the roots of newly planted trees, nor should they be buried too deeply or more so than they have been previously. In forming new shrubberies present effect only ought not to be the principal consideration, but due regard must be paid to the habits of the different trees and shrubs. The sites of those intended to be permanent should be first staked out, and as these will naturally be of the choicest description, the more common shrubs may be employed for filling in the intervening spaces.

Thinning-out and Transplanting.—Many shrubberies are well and carefully planned, only to be spoilt by neglect in after years. If left just as they were planted the chances are that a confused mass of shrubs soon results; whereas, if judiciously thinned out before they had disfigured each other all round, plenty of good shrubs and trees would have been available for planting elsewhere, and the original shrubbery have been greatly improved in appearance. Conifers of all sorts are most effective when well separated from each other, and not a shrub or tree can be named that is not most ornamental when kept just clear of its neighbours. For our part we prefer a clear course round all the trees and shrubs, this admitting of their assuming handsome proportions, each being an attractive feature, instead, as it too often happens,

being merely a contributor to the medley. These timely thinnings from the shrubberies may usually be safely transplanted to any other part of the pleasure ground without the necessity for employing any expensive tree-moving machine. If a trench is opened at a good distance from the tree, and well below the principal roots, the soil may gradually be forked away from them, the tree undermined and left standing on a small pedestal of earth. From this it can readily be slid on to a mat or mats, and with these lifted on to trolly, stone, or hand barrow, the mats being then well secured round the tree, and the removal soon completed. For a short distance mats for either lifting or preserving the roots and soil about them may be dispensed with, and the tree be lifted and carried either with a short strong board or a legless hand-barrow. It is unwise to attempt to secure a large ball of soil about the roots, as this is apt to drop away wholesale, carrying some of the best roots with it. Save as many roots as possible, and be content with a moderate sized ball, from which all unoccupied surface soil has been carefully forked away, the under side being also made as flat as possible. No tree should be dragged out of the ground, but after being well undermined they will slide readily on to the mats or boards, from which they may again be safely slipped off to where they are to remain. All bruised portions of roots to be cut away, and all broken ends will heal more quickly and surely if trimmed with a sharp knife just prior to their being disposed in good fresh soil. A small tree or shrub may be frequently lifted by two or three men, each having a strong fork well inserted in a sloping direction under it, and all lifting together a good ball and plenty of roots are secured. At this time of year very few transplanted trees require to be watered, the soil of the ball, as well as that of the fresh site, usually being quite wet enough. All, however, are benefited by mulchings of strawy manure, liberal soakings of soft water being given early in the summer of before the trees flag from drought.

Digging among the Shrubberies should be an annual proceeding. Only the surface ought to be skimmed over, or only just sufficient to bury weeds and leaves, this really benefiting the trees and improving the appearance of the shrubberies. Where the ground is thickly covered it may be a difficult matter to dig the ground, but as the leaves are constantly blowing out or are scratched out by birds, these should be raked together and buried, and the borders only dug. When Portugal and common Laurels and Aucubas do not cover the ground so well as wished for, many of the branches may be pegged down to the ground, where they soon strike root and spread. Plenty of useful plants may be propagated in this way. We do not advise digging among beds of Rhododendrons, these being more surface-rooting than many other shrubs.

THE BEE-KEEPER.

THE STANDARD FRAME.

At pages 239, 240, "Felix" touches upon the "Standard" and "Woodbury" frame. He says regarding the former, "In several respects the frame might be improved," &c., but does not say in what respect it should be so. There can be little doubt that frames of one size and sort in any apiary have advantages, but other people having frames of a different size from the standard are not put to any disadvantage thereby, therefore let every person use the frame that suits his fancy best. For my own part I would not put bees into a hive having standard frames, nor would I advise anyone to adopt them, for the following reasons:—First, because those who originally proposed to have a standard frame did so for their own benefit and not that of the public; secondly, since the standard frame was first adopted many have made an attempt to break through the rule; thirdly, there is a movement at present amongst the promoters to have it altered; fourthly, I read somewhere lately of one of the largest bee-keepers in England speaking unfavourably of the standard frame. I cannot recall who it was, but think it was Mr. Simmins. The objection he had to it was the same as I have—viz., the top bar was too light, which upon the slightest pressure, accidentally or otherwise, yielded, and if the comb was filled with honey, it was sure to run, and in all probability ruin the hive, especially if the comb gave way under a high temperature. The top bar is not only too thin but it is too narrow, exposing by far too much of the combs, not allowing the bees a proper breadth to attach their combs; besides, when a hive of that sort is wholly exposed on the top, the bees are commonly more infuriated and liable to sting the operator.

There is still another objectionable point with these narrow frames—they are by many kept too close together, ten being crushed into a space that Nature allows for nine. I remember when the late Mr. T. W. Woodbury adopted that plan, a hive so arranged was sent by him to Scotland. I saw the hive and inspected it, and the bees sent in it, and so persistently had the bees striven to adhere to their instincts, they had gradually swelled the inner combs outward until the outer ones were so hampered for room that they were neither fit for storing honey nor for brood. Of all parts of the hive the top bar should be of a proper strength and width.

Passing from the top to the bottom bar or rail, the standard's bottom rail is only one-eighth of an inch thick, which is too flimsy, and serves little or no good purpose. It also requires to be stronger, so that it will support the comb in the frame, and made so that the bees fasten their combs firmly to it, for if not done it is better not to have any bar below. This is always the case with, or should be, with shallow horizontal boxes, commonly about 6 inches deep in the clear, and apparently it will before long be the standard hive. Many are now adopting them, and undoubtedly they offer the most advantages to bees and bee-keepers, and are the cheapest. I saw a joiner the other day who has been long out of work. I showed him one of my hives, and asked him what he could produce similar ones for. He made two, and sent me one of them, stand, and three body boxes, frames, and ventilating floor complete for 8s. 6d. I may inform all who read this that I am in no way concerned in the sale of these hives, and if the maker wishes to obtain a few orders he must advertise. I only mention it to show their cheapness.

Returning to the standard frame, while the top and bottom bar are too light, the end pieces, where there is the least strain, are out of proportion to the other parts, but are a proper strength for frames of a better and heavier make. When the standard frame and hive was first sent out it was simply a half hive. Happily it is not far from being near the proper size when two are used as one hive, only the frames as used have the grave faults mentioned in the foregoing. I feel certain shallow divisions will give greater satisfaction, especially where the extractor is used, while the risk of combs collapsing through heat, pressure, or when in transit, is reduced to a minimum. This is no trifle in bee-keeping, especially where the hives have to be moved about; at least that has been the experience of—A LANARKSHIRE BEE-KEEPER.

POISONOUS HONEY—INFORMATION WANTED.

In several localities I am acquainted with (one at Greenock, another in the Highlands) the bees annually, about the month of May, die in great numbers both out and inside the hive, on their return from the fields. They expire convulsively after the manner some animals die from strychnine poison. At both places *Rhododendrons* are plentiful, but although some attributed the fatal results to the honey collected from these shrubs, I never ventured an opinion. One gentleman at Greenock who has paid particular attention to this calamity for many years, tells me that he observed it occurred only during the east winds, about the time previously mentioned, and only when the wind blew directly over certain sugar refineries, but that at other seasons, when the wind blew in the same direction, the bees were not affected. How is this? Will the carbonic acid gas emitted at these works be more fatal to bee life during spring than at any other time? Is it a disease, or do certain flowers secrete honey that is poisonous?

We have various accounts of people being poisoned with honey—to wit, the Grecian soldiers, and later, the fatal cases in America. It is of great importance to the bee-keepers of this country that this question should be thoroughly understood. If the rumour spreads abroad that honey is sometimes poisonous, the public will cease to use it, and bee-keepers will find a difficulty in disposing of honey, however wholesome it may be. In the first place, then, is there any poisonous honey that bees will gather, and, if so, have bees an immunity from certain poisons? If we believe that *Rhododendrons* or *Azaleas* yield poisonous honey, and are the cause of the death of the bees aforementioned, then they have not an entire immunity from death through sipping the nectar, even although it goes no further than the stomach, as we see poison acting on fowls. In the case of the honey that poisoned the Grecian soldiers, the bees could not have been injured, neither at the gathering nor after, because if so, there would have been no honey stored. Whichever way we look at the evidence it is mysterious and conflicting. I can offer no solution whatever, but I suggest that it is possible that the poison may not be in the honey, but in the pollen. While the Grecians were only intoxicated, the Americans were killed.

We want evidence, however, whether the honey was eaten in a liquid state or direct from the comb. If the latter, then I think it probable that the poisonous effects may be traced to pollen, and that honey is safe at all times to be used when from it. Many people who never saw bees do not know honey from brood comb, and I saw some policemen at an exhibition eat brood and apparently relish it greatly. I only regretted that it was out of my power at the time to let them taste genuine honeycomb. If any of your numerous readers can throw any light upon the subject it will be heartily welcomed by many. Perhaps Dr. G. Walker may be able to enlighten us, and give particulars upon the points of this letter.—A. L. B. K.

FOREIGN RACES OF BEES.

WITH all due deference to "L. B. K." I will call brown bees black in future, but I must agree to differ with him as to his view of the facts

he gives. We must judge of these from what he has written. In one letter he distinctly gives figures which prove that Ligurians and their crosses have, as far as he has a record of, given the largest quantity of honey in a season. In his next letter he says I have put a construction upon his words contrary to facts, and then in his next sentence corroborates what I did say by admitting that the Ligurians were the largest yielders, but excusing the Cyprians and Syrians on account of seasons not being so good. Since the question of foreign *v.* black bees has been raised in this Journal, Mr. Simmins has followed suit in the *British Bee Journal*, and opens the ball with an article on Cyprians. After giving their good qualities, he admits they are no good for section work, as their cappings are thin and lie close upon the honey, giving it a dark damp appearance. Mr. Abbott follows with a letter, in which he gives nothing in their favour, but everything against them. Nearly all writers agree that they are not bees for beginners, as they require very carefully handling, for when roused they are unmanageable, and of course a novice would be much more likely to rouse their tempers than an old hand would.

It appears to me, then, that the great point in the favour of foreigners is their greater prolificness than the generality of blacks; while the points in favour of the blacks are—first, that they are keener after honey than any other race, for when the glut comes they will fill the brood-nest with honey, and will even sometimes tear out brood to make room for it; and second, that they seal their honey the best of any race. The only fault the general run of black bees have, is that in a honey glut they work themselves down too fast. A weak black stock will store honey, but it appears that until a foreign stock becomes extraordinarily strong, it stores none, but devotes its whole energy to rearing brood. Looking at it in this light, does not much of the bee literature of to-day do wrong in advising that blacks should be put on one side to make room for foreigners? I like "L. B. K.'s" advice better when he says parties ought to cyprianise or syrianise a third of their stocks; but I would go further, and say if we must have these pretty golden bees, let us keep them in the proportion of one stock to six black stocks. We should then get a race of bees having the good qualities of both races, but having, what I still hold would be best, a preponderance of the good qualities of our black bees. In a honey glut I have particularly watched the Syrians and Ligurians when working alongside blacks, and it has appeared to me that the blacks have brought far the heavier loads individually. Are we, then, to replace at great expense our native bees by foreigners which we do not understand, but which we know have their bad traits, or are we to improve those we already have? This question wants facing and thoroughly sifting, for it is the most momentous question of the day with us bee-keepers who want to be honey gatherers as well. "L. B. K." and I have had this to ourselves so far, cannot someone else give us a little of his experience?—NOTTS. BEE-KEEPER.



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Books (W. R.).—It will not be necessary to add many works to the list you have given, but all the books published by Mr. B. S. Williams, Victoria and Paradise Nurseries, Upper Holloway, will be found useful, as also will Veitch's "Coniferae." Burbidge's "Propagation and Improvement of Cultivated Plants" (W. Blackwood) might also be added. The prices can be had on application to those firms. The address you require is Whitefriars Street, London, E.C.

Rating Market Gardens (W. Pitts).—The decision to which you refer will, we think, apply to general as well as to local rates, but for precise information you had better apply to a solicitor.

Vines not Breaking (J. B.).—We are unable to account for the canes not starting, assuming they have not been dressed with anything deleterious that has injured the buds. You give no particulars whereon we can found an opinion, neither as to the temperature of the house, position of the roots, or general treatment. You do not even say whether the old rods were cut out or not, and if not whether they are starting—the young canes alone refusing to break. Depress them, syringing twice or thrice a day according to the weather, and maintain a brisk temperature. It is, however, most difficult to answer with precision in the absence of information that is necessary for the purpose of a satisfactory reply.

Watering Vines (D. H.).—The Vine roots being restricted to the brick pit water will be required frequently. It should be given after the Vines are in full leaf and have set the fruit, once a week—a thorough supply each time, a 4-gallon wateringpotful per square yard not being too much, and when the Grapes are swelling freely after setting and until the colour is changing it should be supplemented by a similar quantity of liquid manure, with good surface mulching. With good drainage this is not too much, but much depends upon the weather and the condition of the Vines. In bright

weather the Vines will require water more frequently. After the Grapes change colour lessened supplies will be needed, and when ripening is advanced and completed it will suffice to keep the soil moist.

Camellias with Yellow Foliage (*Idem*).—The Camellias are not, we think, in good health. They are probably in a bad state at the roots. It would be desirable to examine the drainage, and if defective rectify it. At the same time examine the soil, and if not well occupied with healthy roots it would be advisable to remove it from amongst them and supply fresh. We use fresh turfy loam of a light nature, cut about 2 inches thick and turned up roughly. In this we put rather firmly. Good drainage is necessary, as the plants should not be more frequently disturbed than every third or fourth year. Failing the loam, Camellias thrive well in fibrous peat, small plants doing admirably in leaf soil alone with a free admixture of sand. With the roots in a healthy state the new growths will produce better foliage. If the roots are in good condition afford soot water, which will improve the growth and colour of the foliage.

Destroying Slugs (*Inquirer*).—In your case we should try the effects of lime water. Place a peck of lime in lumps fresh from the kiln in a tub holding 40 or 50 gallons of water, stirring well; then allow the lime that is not taken up to settle at the bottom of the tub. If there is a light covering the water will be as strongly impregnated with lime as it can be. Apply it to wherever the slugs abound through the rose of a garden can precisely as if you were giving the ground a good watering after a dry day. Do this an hour or so after nightfall when the marauders are engaged in their foraging expeditions, and unless your slugs are of a harder kind than ours all will be killed that receive a good drenching. The lime water will do no harm to the soil or the plants. By a few nightly applications the enemy will, we think, soon be decimated.

Burned Bones (*J. H.*).—By burning bones the organic or animal matter is consumed, and that undoubtedly possesses manurial value, but the phosphates remain, and these may be regarded as the chief constituents of bones. Burned beef bones have been found to contain in 100 parts, phosphate of lime and fluoride of calcium, 90.70; carbonate of lime, 2.16; carbonate of magnesia 1.10; carbonate of soda, 5.74. This bone earth is thus decidedly valuable, especially for fruit trees, and applied to soil rich in animal matter would be practically equal to bonemeal, but to soil rich in phosphates and poor in animal matter burned bones could not be of much service. It will be apparent, therefore, that the question of burning or not must be determined in accordance with the nature of your soil and the crops to which you desire to apply the manure. By breaking the bones moderately small they are more quickly dissolved by the acid.

Top-dressing for Roses (*A. B.*).—Dissolved bones and soot form a good manure. It is not advisable to mix the lime with them as proposed, but the lime alone would be a good addition to the soil. It should be applied fresh or newly slaked at the rate of a bushel per rod (30½ square yards). It is best applied in March or in the autumn, but it may be given now and lightly pointed in. As a surface dressing you could not have anything better than dissolved bones, soot, and the artificial manure you name, using them in equal proportions. If you add half a part of sulphate of ammonia it would improve the mixture. A dressing early in May, about the middle of June, and towards the close of July, would probably be sufficient, half a peck per rod being a proper dressing of the mixture. We are pleased to learn that we have been of some service to you in securing "fine Chrysanthemums up to the middle of December," and that the Tomatoes planted after them enabled you to "gather the first dish on March 29th." We congratulate you upon your well merited success.

Peach Wood not Ripening (*No Name*).—We assume the trees grow luxuriantly, though you do not say so. You merely say the wood does not ripen, and there is a paucity of pollen, also that you train thinly. We once inspected some Peach trees in the charge of a gardener, and he undoubtedly considered the growths were disposed thinly over the trellis, but there were at least thrice the number of shoots that ought to have been retained. The result was immature wood, in which little nutriment could have been stored, small buds, and the year following not half a crop of fruit. If the shoots of your trees are so arranged that the leaves of one do not overlap those of the other the wood ought to ripen under good management. Perhaps the horder is too rich, loose, and deep, also deficient in calcareous matter. If that is so, and the trees grow grossly, you will probably not find the topping and pinching process advantageous. It is desirable to know something about the nature of the growth and condition of the border for advising in a case of this kind; but the probability is that the root-action is excessive, in which case lifting the trees soon after the crop is gathered, and placing the roots in a firm soil containing a liberal addition of lime rubbish, would result in improvement.

Melon Plant Diseased (*M. C.*).—The plant is attacked by the disease, and it is not of fungoid origin but due to nematoid worms at the roots, and the swellings indicate the presence of nematoids on the growths. It arises in most instances from an excess of organic matter in the soil, or a deficiency of inorganic matter so often essential for the conversion of inert organisms into available aliment. We find all plants subject to tubercles or knobs on the roots fall a prey to nematoids when there is a deficiency of lime in the soil. Last year we were consulted by an octogenarian cultivator about his Melons, which he could not induce to grow and set satisfactorily. The plants had every appearance of nematoids at the roots. We advised a dressing of quicklime to the surface, allowed to lie a few days before stirring it in. Our friend wrote us later on: "The lime acted like magic. I have a splendid crop of Melons." We advise lime to be added to the soil. If the plants are too far gone with them, clear out the soil and start afresh. Either char the soil before using, which will not only destroy any nematoid or fungoid germs, but will cause excessive organic matter to pass off; or an equally good corrective is quicklime at the rate of a sixth, which causes the inorganic matter to be converted into nitrate of lime, an essential in the successful cultivation of all plants with excrescences or knobs on the roots.

Cucumber Leaves Scorched (*A Constant Reader*).—The leaves are destitute of tissue, and in a condition to be extremely liable to scorching on a bright sunny day succeeding a term of dull weather. Though we avoid the use of artificial shade as much as possible, it is often advisable to have recourse to it judiciously under the circumstances indicated, as the lesser of two evils, the greater being the destruction of the foliage. The temperature

you name is not the cause of the evil, though 65° at night is not too much when the pipes are only moderately heated, but we prefer a few degrees lower rather than make the pipes very hot indeed. We suspect the atmosphere of the house has been kept too dry at times; and we should not be surprised if the soil at the bottom of the bed is too dry also. Dig down and ascertain whether that is the case or not. If it is in the least dry make some holes in the bed and pour in water as fast as it drains away till the soil at the bottom of the bed is as moist as that at the top. We are led to think the house has been too dry by the condition of the Kidney Bean leaves you have sent, which are seriously infested with red spider, and would not have been in the condition they are if they had been systematically and effectively syringed. Some of the insects have also found their way to the Cucumbers. The Beans that are still bearing should be laid on their sides and heavily syringed. Very early in the afternoons of sunny days syringe the Cucumbers also, and every part of the house, closing so that the temperature rises to 90° afterwards; with a slanting sun and much moisture in the atmosphere the plants will not be injured if the temperature rises to 95°.

COVENT GARDEN MARKET.—APRIL 6TH.

FRUIT.

FRUIT.											
					s. d.		s. d.				
Apples	½ sieve	2	0	to 5	0	Melon	each	0	0	to 0	0
„ Nova Scotia and						Oranges	100	6	0	12	0
„ Canada, per barrel		10	0	13	0	Peaches	per doz.	0	0	0	0
Cherries	½ sieve	0	0	0	0	Pears	dozen	1	0	2	0
Cobs	100 lb.	60	0	65	0	Pine Apples English ..	lb.	1	6	2	0
Figs	dozen	0	0	0	0	Plums	½ sieve	1	0	2	0
Grapes	lb.	4	0	8	0	St. Michael Pines ..	each	2	0	5	0
Lemons	case	10	0	15	0	Strawberries	per lb.	8	0	12	0

VEGETABLES.

VEGETABLES.												
				s.	d.					s.	d.	
Artichokes	dozen	1	0	to	0	0	Lettuce	dozen	1	0	to 1	0
Asparagus	bundle	8	0	12	0	0	Mushrooms	punnet	0	6	1	6
Beans, Kidney ..	per lb	2	0	2	6	0	Mustard and Cress	punnet	0	2	0	6
Best, Red	dozen	1	0	2	0	0	Onions	bunch	0	3	0	0
Broccoli	bundle	0	0	0	0	0	Parsley	dozen bunches	2	0	3	0
Brussels Sprouts	½ sieve	2	0	2	6	0	Parsnips	dozen	1	0	2	0
Cabbage	dozen	1	6	0	0	0	Potatoes	cwt.	4	0	5	0
Capiscums	100	1	6	2	0	0	„ Kidney	cwt.	4	0	5	0
Carrots	bunch	0	4	0	0	0	Rhubarb	bundle	0	2	0	0
Cauliflowers ..	dozen	3	0	4	0	0	Salsify	bundle	1	0	1	0
Celery	bundle	1	6	2	0	0	Scorzonera	bundle	1	6	0	0
Coleworts	doz. bunches	2	0	4	0	0	Seakale	per basket	1	6	0	0
Cucumbers	each	0	4	0	6	0	Shallots .. .. .	.. .. lb.	0	3	0	0
Endive	dozen	1	0	2	0	0	Spinach	bushel	8	0	4	6
Herbs	bunch	0	2	0	0	0	Tomatoes .. ..	.. .. lb.	1	0	2	0
Leeks	bunch	0	3	0	4	0	Turpins	bunch	0	4	0	0

PLANTS IN POTS.

		s.	d.	s.	d.		s.	d.	s.	d.	
Aralia Sieboldi ..	dozen	9	0	to 13	0	Ferns, in variety ..	dozen	4	0	to 18	0
Arbor vitæ (golden)	dozen	6	0	9	0	Ficus elastica ..	each	1	6	7	0
„ (common) ..	dozen	6	0	12	0	Foliage Plants, var.	each	2	0	10	0
Azalea	per dozen	24	0	36	0	Hyacinths	per dozen	6	9	9	0
Begonias	dozen	4	0	9	0	Lilies Valley	dozen	12	0	24	0
Cineraria	per dozen	9	0	12	0	Marguerite Daisy ..	dozen	6	0	12	0
Cyclamen	dozen	12	0	24	0	Myrtles	dozen	6	0	12	0
Dracæna terminalis,	dozen	30	0	60	0	Narciss (various) ..	dozen	12	0	15	6
„ viridis	dozen	12	0	24	0	Palms, in var.	each	2	6	21	0
Erica, various ..	dozen	9	0	12	0	Primula sisensis ..	per doz.	4	0	6	0
Eunonymus, in var.	dozen	6	0	18	0	Solanums	per doz.	9	0	12	0
Evergreens, in var.	dozen	6	0	24	0	Tulips	per doz. pots	6	0	9	0

CUT FLOWERS.

		s.	d.	s.	d.			s.	d.	s.	d.
Abutilons ..	12 bunches	2	0	4	0	Lily of the Valley, 12	sprays	0	9	to	1 0
Arum Lilies ..	12 blooms	4	0	6	0	Marguerite ..	12 bunches	2	0	6	0
Azalea ..	12 sprays	0	6	1	0	Mignonette ..	12 bunches	4	0	6	0
Bouvardias ..	per bunch	0	6	1	0	Narciss, Paper-white, bunch		0	4	0	6
Camellias ..	blooms	1	6	4	0	„ White English, bunch		1	3	1	6
Carnations ..	12 blooms	1	0	8	0	Pelargoniums, per 12 trusses		0	0	0	6
„ ..	12 bunches	0	0	0	0	„ scarlet, 12 trusses		0	6	1	6
Chrysanthemums	12 bches.	0	0	0	0	Roses ..	12 bunches	0	0	0	0
„ ..	12 bunches	0	0	0	0	„ (ladder), per dozen		1	0	2	6
Cornflower ..	12 bunches	0	0	0	0	„ Tea	dozen	2	0	4	0
Cyclamen ..	12 blooms	0	4	0	9	„ red (French) ..	dozen	2	6	3	0
Dahlia ..	12 bunches	0	0	0	0	Parma Violets (French)		6	0	7	6
Epiphyllum ..	doz. blooms	0	6	0	0	Poinsettia ..	12 blooms	0	0	0	6
Eucharis ..	per dozen	4	0	6	0	Primula (single) ..	per bunch	0	4	0	0
Gardenias ..	12 blooms	12	0	24	0	„ (double) per bunch		1	0	1	0
Hyacinths, Roman, 12	sprays	1	0	1	6	Stocks, various ..	12 bunches	0	0	0	0
„ ..	12 sprays	4	0	6	0	Tropeolum ..	12 bunches	1	6	2	0
Lapageria, white, 12	blooms	2	0	4	0	Tuberose ..	12 blooms	2	0	4	0
Lapageria, red ..	12 blooms	1	0	2	0	Tulips ..	doz. blooms	0	6	1	6
Lilium longiflorum, 12	blms.	0	0	0	0	Violets ..	12 bunches	1	6	2	0
Lilac (white), French, bunch		6	0	8	0	„ Czar, French, per bunch		2	0	2	6



PRUDENTIAL CROPPING.

If it were only possible to impart precision to our plans, or rather to results, what a delightful occupation would farming become. Subject as it is to the uncertainty of times and seasons, our best laid plans, our most strenuous efforts, are beset with the doubt and difficulty that must always attend the pursuit of agriculture in our fickle climate. True it is the seasons follow in due order,

but when "winter lingers in the lap of spring," as it has done this year, bringing us frosty nights late in March of a severity unrivalled by any we had in the depth of winter, and April comes in with a heavy snowstorm, ordinary plans and calculations are bound to be upset, and many a farmer finds himself at a loss where to turn for sustenance for his flocks and herds. It is precisely at such a time as this that the full value and importance of prudential cropping in conjunction with high farming is realised. Happy indeed is he whose pastures are fresh and green with upspringing growth, whose Rye is ready for cows as well as ewes and lambs, whose store of roots and fodder is still so bountiful that all the live stock may be kept upon a full and liberal dietary. No better proof could we want or have than this of prudential cropping, of well-considered purpose and plan, resulting in action having a much greater degree of certainty than usual.

To be more particular, we may explain that by prudential cropping we mean a system which provides for emergencies, and takes fully into account the risks of unkindly seasons, of long periods of drought and heat in summer, of frost and snow in winter and spring. Under such a system we are not content with just enough of any crop, but we require a surplus of such a kind as need not be wasted, but which can always eventually be turned to good account for some useful purpose or other. Take for example winter Tares: the crop is a good one, and may prove sufficient for our requirements; but then it may not, and in order to make sure, one or a succession of sowings of spring Tares will be made. To them we can turn at midsummer for sheep folding, or later still for a supply of fresh succulent green food for cows, when pasture may be parched and brown by drought. Then, too, a surplus both of winter and spring Tares may either be harvested for seed or turned to account for silage, and it should not be forgotten that a surplus green crop may be turned to excellent account by ploughing it into the soil, which it stores with fertility for another crop. Certainly the ploughing in of green crops for manure is highly worthy of mention here, for it holds a leading place in our system of prudential cropping. For land that is foul and poor there can be no better treatment than ploughing, harrowing, rolling, and repeated stirrings till it is fairly clean now, followed by the immediate sowing of 20 lbs. an acre of White Mustard, to be ploughed in when the seed pods are well developed and yet are still green. A second crop may be ventured upon if the weather is favourable to seed germination and free strong growth, but in a hot dry summer it does not answer.

Perennial Rye Grass is another crop requiring attention now. A few hours before sitting down to write this article we were walking across a field of it which was sown about a year ago, and which was in so flourishing a condition that the bailiff suggested turning it to immediate account for sheep folding. This, however, was a mistake, as the Rye comes first, and then the Rye Grass forms an admirable connecting link between it and winter Tares. If not wanted for grazing Rye Grass makes excellent hay, and it affords a stout second crop for either purpose. It also enters largely into our mixture of Grasses and Clovers for two or three year layers, but it requires generous treatment or the fertility of the soil soon becomes exhausted under it. We make particular mention of it here, for though we condemn its use in permanent pasture, yet, rightly used, it is one of our most valuable forage plants, yielding under good cultivation a bulk per acre much heavier than that afforded by meadow grass.

To have a really vigorous early growth of the crops we

have mentioned in such a late spring as the present one, the soil must be well drained and rich in fertility. Without this we cannot induce earliness and vigorous growth; with it we may reckon upon both those desirable advantages. That this simple truism is not understood by farmers generally we have abundant proof now in brown bare pastures, in Rye weak and stunted in growth. Loud is the outcry about the scarcity of food and the lateness of spring, but we fear little attention is given to making such provision for the future as shall prevent a recurrence of difficulties for which blame is laid altogether upon the weather. Earnestly do we hope that our readers will strive to show how by improved practice much may be done to mitigate the evils of a late spring, and how by the prudent exercise of a due amount of foresight neither suffering nor loss may arise from it.

WORK ON THE HOME FARM.

March winds hindered the distribution of chemical manures on land sown with spring corn, but advantage has been taken of every favourable turn of weather for this work. On the whole we have reason to feel satisfied, for the weather has been showery as well as windy, and the manures have been dissolved and washed into the soil, which is now stored with fertility in readiness for the corn. In a wet season there is so much risk of manure sinking too low in the soil that we prefer applying it as a top-dressing after, and not before the corn is sown. Barley sowing is now over, and the plant from early sowing is now well up. Wheat looks well generally, especially on heavy land farms. Winter Oats, too, are full of promise, though somewhat stunted in growth. Exceptionally dry weather induced many farmers to roll winter corn a month ago. Where this was done on land in bleak open situations the plant has suffered from the abnormal severity of the weather in March. Far better is it to leave the surface unrolled till April in order that some shelter may be afforded to the corn. The sowing for Clover, Lucerne, Sainfoin, Trifolium, mixed layers, and permanent pasture should now be done. We intend sowing a field of Lucerne near a farm homestead specially for a supply of green food for the horses. The rows will be far enough apart to admit a horse hoe, as the Lucerne is intended to remain upon this field for several years. Sainfoin sown last spring is now a good plant, and it will probably answer well if left over for another year. We have some of this useful fodder plant on the home farm, and we have provided seed for a fair proportion of it upon two of our off farms. Under high culture it answers well for two or three consecutive years, but we do not hold with leaving it so long that much of the Trifolium plant dies and the land becomes infested with weeds. Well will it be now to consider carefully how much land can with advantage be sown for two or three year layers, not simply to provide fodder for home consumption, but for sale. If only a farm be within reasonable distance of a good market, there is every reason for growing large quantities of fodder. A shilling a rod can always be had for the first crop of green fodder on farms within a mile or two of a town, the buyer doing the mowing and carting. As this crop is cleared the prompt application of manure easily soluble, so that it will act quickly, brings on a second growth of equal vigour and abundance. The best manure of all for this special purpose is sewage or other liquid manure applied by means of a water cart with a spreader behind similar to that in use for watering roads in towns.

METEOROLOGICAL OBSERVATIONS.


CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.					Rain
	Barometer at 32 nd and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max	Min.	In sun	On grass		
1887.											
March and April.											
Sunday	27	29.946	47.8	43.2	S.W.	40.0	57.5	44.1	99.1	39.0	0.010
Monday	28	30.116	46.9	42.0	N.W.	40.7	57.3	38.2	95.2	32.3	—
Tuesday	29	30.553	41.9	39.3	N.	41.2	56.1	40.2	92.1	33.1	—
Wednesday	30	30.316	41.8	44.2	N.	41.7	53.4	40.6	86.6	35.1	—
Thursday	31	30.168	45.3	42.9	S.W.	41.9	53.1	35.8	75.2	31.1	0.317
Friday	1	29.593	33.5	33.5	N.	41.8	47.8	32.7	94.1	31.9	0.493
Saturday	2	29.918	42.3	39.0	N.W	41.2	53.3	32.8	97.1	26.8	—
		30.059	43.5	41.0		41.2	54.1	37.8	90.6	32.8	0.425

REMARKS.

27th.—Wet early, cloudy morning, bright sun-shine with slight showers in afternoon.
 28th.—Lovely morning, cloudy afternoon with spots of rain.
 29th.—Bright and fine.
 30th.—Fine with some sunshine.
 31st.—Cloudy, with glimpses of sun; showery after 4 P.M.
 1st.—Rain in small hours and heavy, wet snow from before 8 A.M. to about 10 A.M., wet morning, showery afternoon with glimpses of sun, gusty all day.
 2nd.—Fine and bright.
 With the exception of Friday morning, which was very wintry, a week of pleasant spring weather. Temperature about the average, and nearly 4° above that of the preceding week.—G. J. SYMONS.



COMING EVENTS

14	TH	
15	F	
16	S	Royal Botanic Society at 3.45 P.M.
17	SUN	LOW SUNDAY.
18		
19	M	
20	TU	
	W	Royal Botanic Society, Second Spring Show. Newcastle-on-Tyne Show.

RHODODENDRONS.

AMONGST hardy evergreen shrubs Rhododendrons must be accorded the most honourable position in gardens. When in full beauty they are unsurpassed by any flowering evergreen, and when out of flower their shapeliness and bright green foliage render them fitting specimens for the lawn or for massing in beds. They are at home in any position, whether in the neighbourhood of a town or the pure air of the country; under trees, or in the open; in sheltered nooks, or in exposed situations, they are alike suitable, and thrive if their simple requirements are attended to. They, however, do not like soils in which lime and chalk prevail, and in such instances special preparations must be made for them. They are worthy of all this, and of much more care than is bestowed upon them in many gardens.

Rhododendrons will grow under forest trees, but should be planted at the same time, for after trees become large and the soil crammed with roots there is great difficulty in establishing them. Before they have a chance of taking possession of the soil by their roots they suffer by drought, and often die the first season after planting. If the large growing trees have been well thinned, and large stations are prepared by digging as deeply as the soil will allow, incorporating with it leaf mould, manure, loam, or even the refuse of the potting shed, or a quantity of the whole mixed together before planting, success can be insured, especially if the shrubs are well watered for the first season until they have taken possession of the soil. In the front of plantations of forest trees there is less difficulty in establishing them. When once established in woods or plantations in which the leaves of the deciduous trees are allowed to remain they will need but little care. When both are planted together and the trees duly thinned they grow rapidly if the soil is of a fertile nature or rendered so by preparation. For undergrowth, as well as for the margins of woodland walks and drives, no other plant equals *R. ponticum*.

In whatever position they may be planted, it is a great mistake to prepare only a small hole and render the soil just surrounding the roots fertile to give them a start. Under this treatment the shrubs grow well only for a few years until the prepared soil fails to supply them with the requisite amount of food. They decrease in health and vigour in proportion as the soil beyond the station made for them is rich or poor. In naturally fertile soils they flourish without farther trouble, but in the majority they become thin and bare, while in others they linger between life and death, only to succumb the first time their energies are severely tested by a long spell of drought,

cutting winds, or severe frost. They frequently succeed better in woods when left to nature for their supply of food than they do in borders and dressed portions of the pleasure grounds. It is in these positions that Rhododendrons, instead of growing luxuriantly, become bare from exhaustion. Every particle of material that would supply them with food is brushed away for the sake of appearance. This I should not object to if the shrubs were supplied with food to sustain them in health and fit them to withstand the adverse circumstances to which they are often subjected. Thousands of Rhododendrons that should now have been very ornamental in gardens are in a deplorable condition, and only fit to be burnt.

I have seen these shrubs grow with wonderful vigour in 6 inches depth of heavy soil resting on a bed of clay, and equally well in light sandy loams, also on peaty soils when left to nature. In each instance, as is natural to the Rhododendron, they root closely on the surface, and their own leaves and those that are drifted under them soon produce a mass of fibres, and the fallen leaves also protect their fine silk-like roots from destruction by drought. In gardens their food is removed, and annually numbers of the surface roots are cut off by the too general practice of digging amongst them. In summer they suffer by drought, and with such treatment well may they be poor, thin, and unsightly. To insure success digging should never be practised about the roots; it is only done to give a neat appearance, and prevent leaves that have drifted in from being blown out and carried on to the lawn. This is to save labour, which can be accomplished by another method, if not perhaps quite so quickly, with benefit to the shrubs. The loose leaves can be brushed out or drawn out with a rake unless the necessary material is at hand for top-dressing them as the work of cleaning proceeds. Refuse from the garden, such as leaves, the mowings of lawns, and the edging of walks, make capital material for top-dressing. The refuse from the potting shed, the surface soil removed from vineries and Peach houses—in fact, all soils after they are useless for indoor work—are excellent for this purpose. Often old hotbeds are available, and a few loads of soil after the most fibry portion has been removed for potting and other purposes, can be purchased in the neighbourhood of towns for covering leaves or material that might blow about. In large gardens the quantity of refuse from the various departments amounts to a large heap in twelve months, which if thrown together and turned will be found to be ample for top-dressing many clumps and single specimens of Rhododendrons. They root freely into leaves or garden refuse, which generally consists of a quantity of rich fertilising material. On light soils I prefer a dressing of cow manure with a thin sprinkling of soil on the surface, because it retains moisture much longer than a dressing of refuse.

The best time for top-dressing is during the winter or early spring while the roots are moist, and then the material used will keep them in that condition throughout the summer. Instead of the shrubs being injured, as is usual during dry weather, by the destruction of their surface roots, it will be found on examination that the old surface is a mass of white fibres that are taking possession of the fresh soil. If the top-dressing is about 4 inches thick it will last for at least three years before it need be repeated. Since we started top-dressing clumps that had never been touched probably since they were planted have become dense and thick, so that leaves that

are drifted in are seldom disturbed by strong winds. All this work should not be left for one year, but if a little is done annually the whole may be supplied with food and a proper medium for the roots without throwing in arrears work in other departments.

Not only do Rhododendrons grow with greater vigour, and retain a fine, dark, glossy appearance by being top-dressed periodically, but they brave cutting winds in exposed positions in many cases without the slightest injury. In exceptional cases if they are browned they quickly recover before the season is over. Plants in poor soil subjected to the evil conditions pointed out are certain to be cut very much, and seldom recover—in fact they always present a thin, naked appearance. Some of our clumps and plants on the exposed side were very thin, but with cutting them well back and top-dressing they are equally as thick as those on the sheltered side.

It is not wise to cut back Rhododendrons that are in an exhausted condition. They should be allowed to grow for one season after top-dressing, and then may be cut back during the early spring months. It is a mistake to delay pruning them until after they have

flowered, for they are then late before they start their growth, which is not well ripened before winter, and in severe weather the shoots are often killed. With plants in a partially exhausted condition the flowers must be removed directly they fade, and not be allowed to remain to ripen their seeds. This is necessary in any case, both for appearance and the well-being of the shrubs.

Planting in exposed positions should be done during the month of September. In sheltered positions Rhododendrons can be planted at almost any season of the year provided the soil is moist; if not, considerable labour is occasioned in watering.—A NORTHERNER.

INCURVED AND JAPANESE CHRYSANTHEMUMS AT THE NATIONAL CHRYSANTHEMUM SHOWS.

THE number of incurved and Japanese Chrysanthemum blooms at the principal exhibition of the National Chrysanthemum Society last year was 2134, or nearly 500 more than at the same exhibition in the previous November. Taking the two shows together, no fewer than 3810 flowers were in all staged for competition, of which 1920 were incurved and 1890 Japanese varieties.

INCURVED VARIETIES.

Position in Analysis.	Number of Times Shown			Name.	Date of Introduction.	Raiser's or Introducer's Name.	Colour.
	At 1885 Exhibition.	At 1886 Exhibition.	At the two Exhibitions.				
1	57	47	104	Empress of India	1859	Laing	Pure white.
2	49	44	93	Golden Empress of India	1875	Loader	Pale yellow.
3	42	42	84	John Salter	1866	Salter	Cinnamon, orange centre.
4	38	44	82	Queen of England	1819	Salter	Blush.
5	29	50	79	Jeanne d'Arc	1881	Lacroix	Blush, tipped rosy purple.
6	42	34	76	Lord Alcester	1882	Fremantle	Pale primrose.
7	28	44	72	Lord Wolseley	1882	Orchard	Bronzy red.
8	24	47	71	Ni Desperandum	1862	Smith	Dark orange red.
9	34	35	69	Mr. Bunn	1879	Bunn	Bright golden yellow.
10	29	39	68	Princess of Wales	1864	Davis	B'ush, tinted rose.
11	27	40	67	Prince Alfred	1864	Davis	Rosy carmine.
12	24	27	51	Alfred Salter	1856	Salter	Lilac pink.
13	20	29	49	Jardin des Plantes	1860	Salter	Rich golden yellow.
14	21	25	46	Prince of Wales	1865	Davis	Purple.
15	22	22	44	Lady Hardinge	1861	Clark	Silvery rose.
15	21	23	44	Mrs. Heale	1866	Heale	White, tinted rose.
15	19	25	44	Princess of Teck	1868	Pethers	White, tinted pink.
16	15	27	42	Cherub	1862	Smith	Orange, tinted rose.
17	21	20	41	Hero of Stoke Newington	1871	Forayth	Rosy pink.
18	20	19	39	Mrs. W. Shipman	1877	Shipman	Fawn colour.
18	23	16	39	Refulgens	1871	Salter	Bright purple maroon.
19	17	21	38	Barbara	1872	Salter	Bright orange amber.
20	12	22	34	Mr. George Glenny	1870	Waters	Bright primrose yellow.
21	5	24	29	Golden George Glenny	1876	Dixon	Bright rich yellow.
22	8	20	28	Venus	1865	Salter	Lilac, tinted peach.
23	8	18	26	Mrs. G. Rundle	1867	Rundle	Pure white.
23	12	14	26	White Venus	1872	Shrimpton	Pearl white.
24	13	11	24	Golden Queen of England	1859	Salter	Canary yellow.
25	11	12	23	Emily Dale	1872	Dale	Pale straw colour.
25	12	11	23	Golden Eagle	1863	Davis	Dark orange.
26	7	15	22	Beverley	1863	Smith	Cream white.
26	7	15	22	Lady Slade	1864	Smith	Lilac pink.
26	5	17	22	Mr. Brunlees	1865	Smith	Indian red, tipped gold.
26	11	11	22	Princess Beatrice	1868	Wyness	Rosy pink.
27	4	15	19	Eve	1865	Smith	Creamy white.
28	4	11	15	Baron Beust	1863	Pethers	Chestnut red, tipped yellow.
28	9	5	15	Empress Eugénie	1866	Pethers	Rosy lilac.
29	2	10	12	Antonelli	1862	Smith	Salmon orange.
29	5	7	12	Mabel Ward	1881	Martin	Buff yellow.
30	5	5	10	Abbé Passaglia	1863	Smith	Brassy amber.
30	1	9	10	Novelty	1860	Clark	Blush.
30	4	6	10	White Gobe	1858	Salter	Pearl white.

After a season such as that of last year, which was generally considered a very unfavourable one for the proper development of the blooms of many varieties in this section, it may be interesting to compare the relative positions held by some of the leading kinds at the two exhibitions. For instance, Jeanne d'Are, which in 1886 was more frequently shown than any other kind, stood in the previous analysis no higher than No. 6. Again, Lord Wolseley has risen four places as compared with its position in 1885, Nil Desperandum seven places, Prince Alfred three places, Cherub six places, and Golden George Glenny as many as fourteen places. On the other hand, Empress of India no longer occupies the premier position, having to give way as before stated, to Jeanne d'Are; while Lord Alcester loses five, Mr. Bunn two, Lady Harlinge three, Hero of Stoke Newington four, and Refulgens ten places. In making these comparisons it should be clearly understood that no reference is here made to the positions accorded to the different varieties in the above list, these positions being regulated by the total number of times they were staged at the two exhibitions taken together.

exhibition. On the other hand, there are many kinds which do not take such good positions as they did at the preceding show. For example, Criterion loses twelve places, Monsieur Ardène thirteen places, Agréments de la Nature no less than twenty-one places, Dr. Macary thirteen, and L'Incomparable fourteen places.

The best of the 1883 varieties, judging by their positions at last year's exhibition, come out as follows:—Monsieur Astorg (No. 7), Flamme de Punch (No. 16), Monsieur Tarin (No. 21), Dormillon (No. 22), Roseum superbum (No. 23), Monsieur Henry Jacotot (No. 25), and Margot (No. 26), while those sent out in 1884 arrange themselves in the following order:—Fernand Féral (No. 16), Monsieur John Laing (No. 20), Madame de Sévin (No. 21), and L'Incomparable (No. 28). Among the more recently introduced may be named L'Adorable (No. 20), Mdlle. Paule Dutour, Souvenir d'Angèle Amiel, and notably Maiden's Blush, which, as before mentioned, taking its 1886 form alone, already stands No. 18 on the list.

The leading varieties in the reflexed section place themselves in order of merit as follows:—Cloth of Gold, Cullingfordi, King of Crimson,

JAPANESE VARIETIES.

Position in Analysis.	Number of Times Shown			Name.	Date of Introduction.	Raiser's or Introducer's Name.	Colour.
	At 1885 Exhibition.	At 1886 Exhibition.	At the two Exhibitions.				
1	41	54	95	Madame C. Audiguier	1879	Marrouch	Deep mauve.
2	38	35	73	Jeanne Délaux	1882	Délaux	Dark velvety brown.
3	34	39	73	Mdlle. Lacroix	1880	Lacroix	Sulphur white.
4	34	31	65	Fair Maid of Guernsey	1872	Downton	Pure white.
5	23	32	55	Comte de Germiny	1881	Veitch	Nankeen, striped crimson brown.
6	21	31	52	Elaine	1871	Downton	Pure white.
7	20	31	51	Peter the Great	1876	Carey	Lemon yellow.
8	17	29	46	Monsieur Astorg	1883	Délaux	White, rose violet centre.
9	18	28	46	Soleil Levant	1874?	Dr. Audiguier?	Pale yellow.
10	22	24	46	Thunberg	1881	Veitch	Pale golden yellow.
11	13	33	46	Val d'Andorre	1880	Marrouch	Chestnut, shaded orange.
12	23	22	45	Madame B. Rendatler	1877	Délaux	Orange, shaded to yellow.
13	23	15	43	Criterion	1868	Salter	Amber.
14	11	29	40	Triomphe de la Rue des Châlets	1876	Pertuzès	Salmon red.
15	17	20	37	Marguerite Marrouch	1878	Marrouch	Crimson, edged gold.
16	13	18	31	Japonais	1878	Délaux	Bronze yellow.
17	14	17	31	Triomphe du Nord	1857	—	Crimson maroon.
18	11	19	30	Boule d'Or	1882	Bernard	Yellow, tipped bronze.
19	15	14	29	Hiver Fleuri	1879	Délaux	Cream white, tinted rose.
20	11	16	27	Album Plenum	—	—	Delicate creamy white.
21	14	12	26	Meg Merrilies	1870	Salter	Sulphur white.
22	17	8	25	Monsieur Ardène	1878	Lacroix	Rose lilac.
23	14	10	24	Monsieur Tarin	1883	Délaux	Silvery violet rose.
24	13	10	23	Fanny Bouchard	1879	Délaux	White, with pink tinge.
25	8	15	23	Flamme de Punch	1883	Délaux	Orange, shaded red.
26	20	2	22	Agréments de la Nature	1881	Délaux	Golden yellow, shaded brown.
27	8	12	20	Baronne de Prailly	1868	Salter	Rose blush.
28	9	11	20	Monsieur John Laing	1884	Délaux	Crimson brown and gold.
29	8	12	20	Monsieur Brunet	1879	Lacroix	Violet mauve.
30	4	15	19	Fernand Féral	1884	Délaux	Rosy mauve.
31	9	10	19	Madame de Sévin	1884	Délaux	Rosy purple.
32	12	7	19	Monsieur Délaux	1877	Délaux	Crimson, with yellow centre.
33	3	16	19	Striatum	1862	Fortune	White, striped plum colour.
34	8	10	18	Comtesse de Beauregard	1868	Salter	Light rose.
35	6	11	17	Sarnia	1876	Carey	White, shaded violet rose.
36	5	11	16	Baltimore	1878	Délaux	Rose purple.
37	12	4	16	Dr. Macary	1878	Délaux	Rose, tinted white.
38	8	8	16	Roseum Superbum	1883	Délaux	Soft rose, white reverse.
39	4	12	16	Source d'Or	1882	Délaux	Orange, shaded gold.
40	3	12	15	Bouquet Fait	1879	Délaux	Bright rose pink.
41	2	13	15	Grandiflorum	1862	Fortune	Bright yellow.
42	12	3	15	L'Incomparable	1884	Délaux	Bronze, spotted crimson.
43	9	6	15	Monsieur Henri Jacotot	1883	Délaux	Crimson, tipped gold.
44	7	6	13	Belle Paule	1881	Marrouch	White, edged rose.
45	5	8	13	Golden Dragon	1867	Salter	Bright yellow.
46	2	11	13	L'Adorable	1885	Délaux	Canary yellow, shaded violet.
47	0	13	13	Maiden's Blush	1886	Stevens	Creamy white, tinted blush.
48	8	5	13	Marrot	1883	Délaux	Rose chamois.
49	3	9	12	Dormillon	1883	Lacroix	Rosy purple.

The most noticeable feature in the above analysis is the prominent position taken up by Madame C. Audiguier, this fine flower having been at the two exhibitions shown in twenty-two more stands than any other variety. Taking the two shows separately and comparing them, we find Monsieur Astorg gains three places, Val d'Andorre nine places, Triomphe de la Rue des Châlets eight, Boule d'Or three, Fernand Féral five, and Striatum seven places, while Maiden's Blush, which in the 1885 analysis did not appear at all, stands as high as No. 18 in last year's

Phidias, Chevalier Domage, Christine White, Christine Golden, and Felicity. As regards the large Anemones, the following were most frequently to be seen in last year's show:—Empress, Georges Sand, Lady Margaret, Acquisition, Gluck, Mrs. Pethers, and Prince of Anemones; while the best of the large hybrid Anemone varieties appear to be Fabian de Mediana, Mdlle. Cabrol, and Sœur Dorothee Sonillé.

My best thanks are due to Mr. Harman Payne for supplying me with the dates and raisers' names of those incurved and Japanese varieties

high are tabulated in the present analysis, but which did not find a place in the one which appeared in the Journal about this time last year.—E. M., *Berkhamsted*.

CUCUMBER CULTIVATION.

THE cultivation of the Cucumber outdoors is largely practised on the silicious and oolitic soils of Bedfordshire and Huntingdonshire, Sandy and Biggleswade in the former, and St. Neots in the latter county being the centres. The cultivation of the Cucumber is practised in those localities without any artificial heat whatever. The seed is sown in early May—mean temperature $53\frac{1}{2}^{\circ}$, June 60° , July 63° , August 61° , September 56° , which allows through the whole period of a safe minimum or decline on the mean of 15° , but the temperature sometimes suffers a considerably greater decline in May, early June, and late September, when the plants are more or less injured or destroyed by frost. In the silicious soil the seed is in a more favourable medium for vegetation than in soils of closer texture; it will be sooner heated than clay, alluvial, or moisture-holding soil, in fact much warmer at the surface than lower down, and as the season advances and the heat increases the soil is warmed as the roots grow, so that in open air culture we treat the Cucumber in precisely the same manner as if it were indigenous. For outdoor culture varieties succeeding in a mean temperature of 60° (the mean of our climate from the middle of May to the middle of September inclusive) are selected, and for artificial cultivation those that grow in a mean of 70° in winter and 75° in summer. We therefore get outdoor Cucumbers with a mean of 60° , winter fruit with a mean of 70° , and summer fruit with a mean of 75° , a difference equal to the maximum or minimum range—viz., 15° . Is not this highly suggestive? The Ridge Cucumber has been so acclimatised as to succeed in a country with a mean summer heat of 60° . Is not the Ridge Cucumber identical, and as little changed as when grown in frames heated with dung, and covered with tale by the Romans? Certainly it is similar to those treated as Ridge and grown in oiled paper or canvas-covered frames a century ago by Abercrombie. Efforts at improvement have induced tenderness in a much enlarged plant and fruit. Much is clearly due to variety, and is alluded to as suggestive of a wide field of exercise to the cross-fertiliser with a view to improvement of the fruit of the Ridge Cucumber, and implanting some of the hardness of that in the frame varieties.

Then, in respect of soil, manure is applied in quantity to the silicious soil, the silica attracts the heat, the manure absorbs and retains moisture, humus, or nitrogenous matter for sustaining the vigour of the plants under powerful sun, the Vine is strengthened by the silica. In frames moisture and humus is present in the fermenting beds, silica or lime is not clearly patent, and the plants gun, gangrene, and collapse without assignable cause. In houses moisture is sought in soils having retentive power—peat, loamy turf-decomposing food evolving matter, and the plants sometimes collapse suddenly—their tissues full of fungus threads and spores. It is a cultural defect—want of silica and lime in the structure of the Vine—therefore old mortar rubbish containing both silica and lime in the carbonate state is added to the soil and manure avoided, food being supplied in surface dressings or in liquid form.

Light is essential for the elaboration and assimilation of the sap. The higher the cultivation the greater need of the foliage having full exposure. Under artificial heat growth is effected independent of the weather. In dull cloudy wet weather—unfavourable alike to evaporation and assimilation—the plants grow most, the temperature being favourable, and the foliage flags upon a return of bright weather (even outdoors), it not being adapted for bearing the full force of the sun's rays, and the light needs modifying by shading, gradually diminished as the plants from the solidification of the growth become hardened. The foliage of the Cucumber evaporates much moisture when growing in the open air or naturally and the plants are invariably healthy, at least as long as the evaporation conditions continue, but a period of dull wet weather so impedes evaporation that the plants become unhealthy. Artificially we cause evaporation by ventilation or a dry atmosphere, and so secure a sturdy healthy growth, by keeping the house close and moist so that evaporation is arrested the plants become unhealthy. Cucumbers do not require any air, some may say. I know they are grown well without air as it obtains on the orthodox system, and it needs no saying that Cucumbers have been grown the past thirty years and longer with scarcely any ventilation from September to April. I have seen examples of Cucumber growing without air through the hottest months of the year, and I have seen a house 106 feet long and 14 feet wide both sides of the span-roof hung with fruit. The only danger is from the sun scorching. The foliage lacks solidity, it is the same in texture as plants which in a dull period have not had air, soft and incapable of withstanding

sun. The danger of scorching is not in the morning but in the afternoon, through the leaves not having evaporated sufficiently through the day; they are gorged with moisture and are scalded, a thing practically unknown at that period of the day under the ventilation system. When scorching occurs on the ventilation principle it is in the early part of the day—the atmosphere having been kept close, stagnant, and laden with moisture. The ventilation system is Nature's plan; moisture at night for absorption, its dissipation by the sun's influence for effecting elaboration and assimilation; the non-ventilating system is moisture in the daytime to keep back evaporation and secure growth of fruit, consequently the foliage is overlaid with moisture in the afternoon, and the sun acting upon it in that condition causes it to be scalded. We get a maximum of growth of fruit by the non-ventilating system, and quality (as we accept it in other fruit) is not of consequence; in fact, the less flavour a Cucumber has the better it is liked. It is sufficient if the fruit be fine, short necked, of good colour and bloom, straight and long, and grown quickly so as to be crisp and tender.

MODES OF CULTURE.

Cucumbers are grown in four ways. 1, In houses or pits heated by hot-water pipes, with bottom heat by those solely, or a combination of fermenting materials. 2, In pits or frames heated with fermenting materials. 3, In houses, pits, or frames without artificial heat. 4, In the open air. The first-named is far the most important from a cultural point of view. I will treat of them in that order. 1, Houses or pits heated by hot-water and having bottom heat. These are usually employed for supplying fruit from October to May inclusive, being defined as autumn, winter, and spring fruiters respectively, the autumn fruiters giving fruit up to Christmas, or until the winter fruiters take up and continue the supply, and the spring fruiters continue the supply from April.

THE HOUSE OR PIT.—I think the span-roofed house is the most suitable. A lean-to has its advantages in the dull murky weather prevailing from November to February, but they are disadvantageous at other times of the year, therefore I give preference to the span-roof for all seasons, with the ends of the structure north and south. The side walls 4 feet 6 inches high above the floor level, 9 inches thick, except the top four courses on the outside, which should be $4\frac{1}{2}$ inches built in cement. Side lights are not necessary. Ventilators 2 feet by 12 inches should be fixed in the side walls under the wall plates, one in the centre of each light when the width is 14 feet, and every other light when the width is 10 feet, the lights to be 4 feet or 4 feet 6 inches wide. A pathway 2 feet 9 inches wide should be allowed. The walls for forming the sides of the beds $4\frac{1}{2}$ inches and 3 feet high above the floor, the top course built in cement or having a stone capping. This will give beds in a house 14 feet wide of 4 feet 6 inches width, and in a pit of 10 feet width of 2 feet 6 inches. The height in the centre of the 14-foot house must be 8 feet 6 inches, and in the 10-foot 7 feet 6 inches to the under side of the rafters. Every alternate light of the roof should be moveable, available alike for ventilation or removeable for handiness of getting in soil and *vice versa*. At the apex should be a lantern ventilator with a 12 inches wide opening, and raising $6\frac{1}{2}$ inches for the larger house, and 9 inches wide, and lifting 5 inches for the pit. The rafters and light bars should be provided with drip-proof grooves. A trellis will be necessary fixed 12 inches to 15 inches from the glass. No. 10 galvanised wires supported by stays at every rafter so as to be $7\frac{1}{2}$ inches apart are best. The wider house will require six rows of 4-inch pipes for top heat. Two rows may be fixed on the ledge of the side walls, one above the other, and a row on each of the bed walls. The latter should have evaporation troughs. Six rows of 4-inch pipes will be required for bottom heat, three rows in each bed. In the smaller house or pit four rows of pipes will be required for top heat, all 4-inch, one row on the ledge of the side walls and one on the bed edges, these being provided with evaporation troughs. Four rows of 3-inch pipes will be required for bottom heat, two in each bed. Fix the pipes for bottom heat on the flat, dividing the distance equally, and they should be fixed so that their upper side is 18 inches below the level of the bed edge, so that they can either be covered and surrounded with rubble or with flags or slates so as to form a chamber. The heating must be so arranged by means of valves that the bottom heat can be worked separately or together. If fermenting materials are to be used for bottom heat the beds must be deepened for tan to 3 feet and for leaves and dung to 4 feet, in addition to the foot depth required for soil. Sometimes hot-water pipes are employed in addition to the fermenting materials, in that case two rows in the 4 feet 6 inches wide beds, and one row in the 2 feet 6 inches wide beds are sufficient, and should be fixed 18 inches from the intended surface of the beds.

VARIETIES.—There is plenty of choice and there is no great difference, therefore if any are omitted it is not because they are bad, but because a moderate number of varieties is better to select from than

a great number. Small varieties.—These are of the Syon House race, having fruit on an average about 12 inches long. Carter's Champion, Monro's Duke of Edinburgh, Masters' Prolific, and Taylor's Montrose No. 1. Medium sized.—Cardiff Castle (Pettigrew), Veitch's Perfection, Telegraph (Rollisson's), and Paragon (Kelway). Long or large sized.—Tender and True (Douglas), Sutton's Duke of Connaught, Carter's Model, and Cox's Volunteer. Large varieties for exhibition.—Carter's Model, Sutton's Duke of Connaught, Pearson's Long Gun, and Douglas' Tender and True. Varieties for market.—Rollisson's Telegraph and Cuthbert's Perfection. Varieties with green fruit.—MacIndoe's Verdant Green, Cardiff Castle. Rollisson's Telegraph (in a true carefully selected stock) is the finest Cucumber; taking constitution, cropping, and reliableness into consideration, it has no equal either for winter or summer use.

TIMES OF SOWING.—For autumn fruiting the first week in July. These will fruit through the autumn to Christmas. For winter fruiting the first week in September; these will fruit through the spring from Christmas. For spring fruiting the first week in January; these will fruit by April and onward. Instead of sowing in July and again in September, one sowing at the beginning of August is made to serve for both, and these give fruit prior to Christmas, and a full supply then and through the spring months, or until the January sown plants fruit in April, or until fruit is furnished by plants in pits or frames.—G. ABBEY.

(To be continued.)

CULTURE OF TURNIPS.

I AM taught by experience that strong soil liberally dressed with farmyard manure produces, as a rule, large coarse Turnips, and that light soil enriched with Peruvian guano, and which has had a sprinkling of fresh soot raked into it prior to drawing the drills 1 inch deep and 12 to 15 inches apart, invariably produces clean medium-sized roots. The seed should be sown thinly, the soil closed over it, trodden with the feet, and then raked in the same direction as the drills, afterwards protecting the seed from the ravages of birds with a piece of garden netting supported by short forked sticks. From the first week in March up to the middle of May the seed may be sown in a border having a south aspect and a dry rather than moist subsoil; but after this date aspect and conditions of soil the reverse of those indicated will during the summer months produce more satisfactory results. Sow seed for yielding late supplies of Turnips in the same situation as advised for early crops from the beginning to the middle or third week in August.

As soon as the young plants are large enough thin them to 3 inches apart in the row, afterwards thinning them to 6 or 9 inches before they get crowded. This method of procedure is better than thinning the plants to the proper distance in the row at first, because it is pretty certain that all the plants left to form the crop at the second thinning will grow. The Dutch hoe should be run frequently between the rows, as much with a view to accelerate growth as to destroy weeds.

As to varieties, having tested many we confine ourselves to the following, which may be relied upon to give satisfaction—viz, for first crop, Extra Early Milan Strapleaf, of fine shape and excellent quality; Purple-top Munich, resembling the above in every particular except in the leaf, but a few days later sown side by side on the same date; and Early Snowball, flesh white, sweet and tender, and of handsome shape. The last-named variety is the only one grown for summer and early autumn use. Veitch's Red Globe, Chirk Castle Black Stone, and Orange Jelly give every satisfaction for winter use. The Turnip fly is sometimes very troublesome, but on its first appearance on the young plants the latter while damp should be dusted with a mixture of lime and fresh soot. This application will not only have the desired effect, but will also prove beneficial to the crop.—H. W. WARD.

NARCISSUS CYCLAMINEUS.

AMONG the many bulbs introduced to our gardens of late years, few have been so full of interest to the cultivator as this one, not only from the distinct character of its flowers, which seem, on first appearance, to be a combination of the triandrus and trumpet groups, but also on account of the length of time it remained undisturbed and unidentified in a wild state in its quiet home near Oporto. Those versed in Daffodil lore have identified the present plant with descriptions and figures belonging to the seventeenth century. The first of these is dated 1623, No. 47, Jardin du Roy, under the name of *N. hispanus minor amplo calice foliis reflexis*. It is also figured in Rudbeck's *Theatrum Floræ*, 1637, tab. 20, as *N. hispanicus minor luteus amplo calice foliis reflexis*; in

Parkinson's *Theatrum Botanicum*, under its present name, 1640; and by Haworth as *N. minor cyclamineus*. It is very remarkable that this plant had been quite lost sight of for upwards of 200 years, notwithstanding that the figures and descriptions above quoted very accurately represent the plant as we know it to-day. Herbert, in his *Amaryllidaceæ*, page 306, quotes Rudbeck's figure, but says that this is "another absurdity that would never be found to exist. It is probably an execrable representation of *Ganymedes Capax*, with the margin of the cup incorrectly given, and, looking at all the rest of Rudbeck's figures, I have no hesitation in recognising it as a nonentity. There is no account of the quarter from which it was obtained." With living specimens before us, and also a copy of Rudbeck's figure, we have not the slightest doubt as to their identity.

Its native habitat is in the neighbourhood of Oporto, where it was first discovered by E. Johnston, Esq., bulbs were collected by Mr. A. W. Tait, well known in connection with Portuguese plants, and distributed in this country. It flowers in March and early in April, and in its native home as early as February, growing in sandy loam on the banks of a stream, at an altitude of 3000 feet above sea-level, and, we are told, perfectly isolated from all other Daffodils. The corona is orange yellow, very



Fig. 51.—*Narcissus cyclamineus*.

long and narrow, and spreading at the mouth, the perianth reflexed, lighter in colour than the corona, and in this respect only resembling the triandrus group. The tube is almost absent, the perianth and corona growing directly out of the ovary. It is likely to prove as tender as *N. calathinus*, &c., but that group we find to thrive fairly well in the open air, if placed in well drained soil in a warm sheltered spot. *N. cyclamineus* ripens seed freely, and no doubt before long it will be within the reach of all who care to possess it.

The engraving (fig. 51) was prepared from a specimen growing at Kew, and a first class certificate was awarded at South Kensington on Tuesday last for specimens from Messrs. Barr & Son, King Street, Covent Garden. (*Syn. Narcissus Henriquesii*).—M. S.

LATE-BEARING MUSHROOM BEDS.

MUSHROOM-GROWING has almost become as fashionable a subject as Grape-growing, and nobody ever tires of that. It is not my intention to enter fully into details of general Mushroom culture here, but my remarks will refer to a point which is common in the experience of all. The winter has been a long and severe one, and in no way in favour of Mushroom culture where the means of carrying it on are not of the best. Indeed, the weather since November has been such as to check the growth of Mushrooms in many instances, and I have no doubt some of your readers have beds that were made up in November and December that have not produced Mushrooms, or anything like a full crop.

Everything being right, beds ought to bear in five or six weeks after spawning, and when few are produced in eight, ten, or twelve weeks the cultivator is apt to conclude that the bed is a failure; it is broken up, and the manure used for other purposes. At certain times this might be the correct thing to do, as a bed which in favourable weather failed to bear in eight or nine weeks may be treated as useless; but I would never consider a bed which was late in bearing in winter a failure until I had seen what the more favourable weather in spring produced, and all beds at the present time which have failed to bear in season ought to be retained until May at least.

Ocasionaly, again, we have had beds in cool sheds which have failed to produce Mushrooms at the proper time in January, February, and March, but which in April and May have produced them in abundance—in fact, as freely as if they had never lost a week or a month, and I would strongly advise all who have had to deal with unsatisfactory crops during the last three months to give the beds another chance. Beds, however, which do not bear are always liable to become too dry, and before anticipating any Mushrooms they ought to be well soaked with water at a temperature of 90°. This water cannot be given to penetrate the bed at one watering, but a little must be applied at intervals for perhaps a whole day, then cover the bed with a thick coating of hay, and look out in a week or two for useful little buttons and large fleshy heads.—J. MUIR, *Margam Park, South Wales.*



AT a General Meeting of the ROYAL HORTICULTURAL SOCIETY held April 12th, Dr. Maxwell T. Masters, F.R.S., in the chair, the following candidates were duly elected Fellows—viz., Arthur H. Easton J. T. Hazeldine, F. T. Daniel.

— WITH regard to the "Frost Report," we are desired to state that any Honorary, Foreign, or Corresponding Member of the Society may obtain a copy of this work free of charge by applying to the Secretary of the Royal Horticultural Society, South Kensington, S.W. Mr. Geo. Maw, F.L.S., of Benthall, Kenley, has been elected a Member of Council vice Mr. A. B. Mitford, C.B., who has resigned. It has been decided to hold a Chrysanthemum Show on the 8th and 9th of November next. The idea of holding a Conference on Grapes has been abandoned for this year. Arrangements will shortly be made by which residents in the neighbourhood of the Royal Horticultural Society's Gardens at Chiswick, who are not Fellows of the Society, will be admitted to the Gardens on easy terms.

— THE PROPOSED GARDENERS' ORPHAN FUND.—A well-attended meeting was held at South Kensington on Tuesday last, Mr. G. Deal presiding, at which the draft scheme prepared by the Special Committee was revised and ordered to be printed for distribution amongst gardeners, with the object of gaining their adherence to the project.

— WE are desired to note that MR. BENJAMIN FIELD, dealer in horticultural requisites, has established a central office and sales room at 75A, Queen Victoria Street, London, E.C., his goods depôt remaining, as usual at Swan Place, Old Kent Road, S.E.

— RATING NURSERIES AND MARKET GARDENS.—Mr. W. Piercy Forest Hill, sends the following note:—"At the Greenwich Police Court on Wednesday, April 6th, 1887, before Mr. Montagu Williams, the Overseers of Lewisham v. Henry James Cobb of the Derby Villas Nursery, Forest Hill. This was an application by the Overseers for the payment of £2 11s. for rates in respect of his cottage and nursery grounds, Derby Villas, Forest Hill. Mr. Coxwell of 15, Walbrook, appeared for Mr. Cobb, and contended that after the decision of Purser v. the Worthing Local Board, heard in the Division Court before Mr. Justice Day and Mr. Justice Wills, reported in *The Times* of the 21st of March, 1887, Mr. Cobb could be assessed in respect of the nursery grounds at one-fourth only, but as regards the cottage occupied by him at the full value. This was opposed by Mr. Clutty, the collector, on the grounds that there was one assessment only. Mr. Montagu Williams, after considering, said that there should be separate assessments for the land and cottage, and having reference to the Inhabited House Duty Act of 1881, adjourned the case to allow the parties to come to terms."

— "W. D. B." wishes to know whether RHODODENDRON CUNNINGHAM'S DWARF WHITE is a distinct variety from the Old Cunningham's White? If not, was it not raised, or at least sent out, by the late Mr. George Cunningham of Liverpool? Cunningham's White is a fine forcing plant, but will Mr. Carter please say if the variety he alludes to is distinct.

— WE are requested to announce that Mr. George Willers of The Nurseries, Trumpington Road, Cambridge, has been appointed florist to His Royal Highness the Prince of Wales by special and Royal warrant.

— SLAG AS A MANURE.—A new industry, says the *Standard*, is being established in South Staffordshire in connection with the steel trade. A complete plant has just been laid down at the works of the Staffordshire Steel and Ingot Iron Company, Bilston, for the grinding of basic slag for agricultural fertilising purposes. A slag house, 140 feet long by 50 feet, has been built for the accommodation of grinding machinery. The process is divided into three stages. The last completely pulverises the slag, making it of such a fineness that it will pass through a mesh of 10,000 holes to the square inch. The slag, being composed of 40 per cent of lime, and from 15 to 20 per cent of phosphoric acid, its value as an agricultural fertiliser is becoming increasingly appreciated.

— MESSRS. J. CARTER & Co., 237 and 238, High Holborn, have issued the fourth edition of their essay on "LAWNS, LAWN TENNIS, AND CRICKET GROUNDS," in which much condensed useful information is given on these subjects; preparing the soil, sowing the seed, and after management are discussed and elucidated.

— A BUCKINGHAMSHIRE correspondent sends us an example of what he terms a FEATHERED CYCLAMEN, in which the lobes of the corolla are furnished with a kind of crest formed of deeply and irregularly cut segments, imparting a very peculiar appearance to the flower. It cannot be regarded as much more than a monstrosity in its present condition, but it might develop into something of an ornamental character.

— RHODODENDRONS IN POTS.—"I have often wondered," writes a southern gardener, "why Rhododendrons are not more generally grown in pots, especially seeing what capital plants can now be purchased at a comparatively cheap rate. Recently I saw a large number in the show house at Garaway's nurseries, Clifton, Bristol, many of them in full bloom and others advancing. They are very dwarf, and nearly every shoot is furnished either with a bud or a beautiful truss of blooms. Some of the best varieties were Cynthia, Boule de Neige, Madame Wagner, Blandianum, John Waterer, Joseph Whitworth, Prince Camille de Rohan, Henry Bohn, Cunningham's White, Michael Waterer Concessum, John Spencer, and Sherwoodii."

— GARDENING APPOINTMENT.—We learn that Mr. Joseph Godseff, who has for the past sixteen years had the management of Mr. William Bull's nurseries at Chelsea, has been appointed manager of Mr. F. Sander's extensive Orchid establishments at St. Albans.

— AT the ordinary meeting of the ROYAL METEOROLOGICAL SOCIETY, 25, Great George Street, Westminster, on Wednesday, the 20th inst., at 7 P.M., the following papers will be read:—"The Storm and Low Barometer of December 8th and 9th, 1886," by Charles Harding, F.R.Met.Soc. "Report of the Wind Force Committee," drawn up by G. Chatterton, M.A., M.Inst.C.E., F.R.Met.Soc. "A New Form of Velocity Anemometer," by W. H. Dines, B.A., F.R.Met.Soc. "Description of two Maximum Pressure Registering Anemometers," by G. M. Whipple, B.Sc., F.R.Met.Soc. The three latter papers will be in type before the meeting. Any Fellow wishing to take part in the discussion can obtain a copy on application to the Assistant Secretary, Mr. William Marriott.

— THE third edition of Messrs. Sutton & Sons' work on "THE CULTURE OF VEGETABLES AND FLOWERS FROM SEEDS AND ROOTS" has just been issued. The main portion of the book continues the same as in the previous edition, but it has been carefully revised and enlarged by about 100 pages, including a useful chapter on "Lawns from Seed," with several others on flowers that were only incidentally mentioned before. The instruction is of a thoroughly practical character, full and simple. In the 406 pages the leading chapters are "The Culture of Vegetables," "A Year's Work in the Vegetable Garden," "The Rotation of Crops in the Vegetable Garden," the "Chemistry of Garden Crops,"

"The Culture of Flowers from Seed," "The Culture of Flowering Bulbs," "Flowers all the Year Round," "The Formation of Lawns from Seed," "The Pests of Garden Plants" (illustrated), "Eradication of Garden Vermin," "The Fungus Pests of Garden Plants" (illustrated), and "The Fungus Pests of Certain Flowers" (illustrated).

— MR. JOSEPH MALLENDER sends the following SUMMARY OF METEOROLOGICAL OBSERVATIONS AT HODSOCK PRIORY, WORKSOP, NOTTS, for March, 1887:—Mean temperature of month, 38.3°; maximum on the 29th, 57.4°; minimum on the 21st, 18.8°. Maximum in the sun on the 12th, 121.2°; minimum on the grass on the 18th, 11.3°. Mean temperature of air at 9 A.M., 37.8°. Mean temperature of soil 1 foot deep, 38.5°. Nights below 32°—in shade sixteen, on grass twenty-one. Sunshine—total duration in month, 105 hours, or 29 per cent. of possible duration. Rainfall in month, 1.29 inches. Rain fell on fifteen days. Wind—average velocity, 9.0 miles per hour. Velocity exceeded 100 miles on four days, and fell short of 100 miles on seven days. Approximate averages for March.—Mean temperature, 41.8°. Rainfall, 1.61 in. Sunshine (six years) 104 hours. A cold dry month of average sunshine; mean temperature rather lower than in February. Vegetation very late.

— THE April number of the "Kew Bulletin" deals with FIBRE-YIELDING PLANTS, special mention being made of the Manila Hemp, *Musa textilis*. It is said that the imports of this material to Great Britain from the Philippine Islands amount to 170,000 bales, to the United States about 160,000 bales, equal to 50,000 tons per annum. The fruit is useless, being hard and green, so that the plant can only be cultivated for the fibre, and this does not seem to have been found sufficiently profitable where it has been introduced from Kew, for while the return from a fruiting stem of the common Banana or Plantain would be from 6d. to 2s., depending upon the size of the bunch, the return from the Manila Hemp plant would, according to experience in the Philippines, be about 1 lb. of fibre, the local value of which would be only 2d. or 3d." The Banana fibre and Pine Apple fibre are also noted at some length.

— THERE has been an abundant supply of FLOWERS IN COVENT GARDEN MARKET during the past week, those most in demand apparently being Richardias, White Lilies, Eucharis, and Roses. Lilies of the Valley, Gardenias, Narcissus, and Violets have also been supplied in large quantities, while for choicer work—wreaths, buttonholes, &c.—Orchids have been freely employed. *Dendrobium nobile* is a particular favourite, and a few well-coloured flowers arranged with Fern fronds for a lady's shoulder wreath have a charming appearance. *Odontoglossums crispum* and *Rossi*, with *Cœlogyne cristata*, are favourites for similar purposes. The plants in pots chiefly comprised Pelargoniums, Heaths, Cytisuses, Spireas, Hyacinths, Tulips, and Richardias. The Tulips, associated with Lilies of the Valley and small Ferns in the same pots, had a more agreeable appearance than when seen crowded together, as they are usually.

— MR. G. RUSSELL, The Gardens, Redlands, Glasgow, sends flowers of RHODODENDRON VEITCHIANUM with seedlings for comparison. The flowers of the seedlings are slightly tinted with rose, the lobes less crisped, and very fragrant. The large pure white flowers of the original type are very beautiful, and it is not surprising that this fine Rhododendron is so great a favourite. In the description which appeared in the "Botanical Magazine" in July, 1857, two months after it was first shown by Messrs. Veitch & Sons at South Kensington, strangely enough no mention is made of its fragrance, yet this is one of its most pleasing qualities. Mr. Russell also sends flowers of Azalea General Gordon, an excellent seedling of the Amœna type with large bright crimson flowers.

— "T. S." would be glad to have "the opinion of any reader of the Journal on STRAWBERRY KING OF THE EARLIES as a variety for early forcing. When started at the beginning of the year it has proved with me a very hard setter; in fact, I may say, it would not set at all, as there were but three or four perfectly formed fruits on two dozen plants. A similar number of Black Prince started at the same time and on the same shelf set a full crop. A later batch of King of the Earlies appears to be setting fairly well. There is a variety known in this neighbourhood as Princess of Prussia; it is very free, a capital setter, and will, I believe, bear more heat in the early stage of growth than any other kind, but it has no flavour. I think, however, it would be worthy

the attention of raisers of new varieties to endeavour to blend its good early-forcing qualities with the better flavour of other varieties."

— THE beautiful VIOLET WELLSIANA was recently exhibited at South Kensington in capital condition, and referring to this excellent variety "J. H. E." writes, "This is certainly the best of the single-flowered varieties. In general habit it resembles the better known kind, Victoria Regina, the latter also being an approach to it in point of colour. For freedom of flowering, length of stalk, colour, fragrance, and large handsome flowers it is far superior to all the rest under precisely the same conditions. To mention its complete hardiness as compared with Victoria Regina, Neapolitan, Marie Louise, and some others which have suffered from the effects of the severe weather more or less, is only to add another point in favour of its more general use. It is in full flower now in the open, and puts Russian, Czar, and several others of the same type quite in the shade. It takes no more room than ordinary varieties; it produces a greater number of flowers, which are considerably larger, and consequently so many are not required to form a good bunch, and then the great length of stalk will make it a consideration to growers in quantity. If any other Journal reader can furnish further points in favour of Wellsiana he should do so, for now is a good time to make fresh plantations."

— *Nature* says that "BRITISH FIELD BOTANISTS will be glad to learn that the Scottish Rights of Way Society has been successful in its action brought in the Court of Session against the proprietor of Glen Doll in Clova. Lord Kinnear has found that "the pursuers had established a sufficient use and possession of the road for more than forty years to entitle them to a judgment." There is probably no portion of the Highlands of Scotland from which botanists would feel it a greater hardship to be excluded. For years it has been so well watched by keepers that access to it has been impossible, except to such botanists as are swift and sure of foot. The present owner is the first who has denied a right of way through it, and, if we are not mistaken, the action only concerns this right to use the road. It is to be feared that efforts will not be wanting to confine the public to the road, and to deny all access to those parts so interesting to the field botanist."

— THE BIRMINGHAM GARDENERS' SOCIETY.—The closing meeting of the winter session was on the 6th inst., when Mr. Walter Jones, gardener to C. E. Matthews, Esq., and a very successful plant exhibitor, read a comprehensive excellent paper on the Erica and its culture. In speaking of the early history of this plant, Mr. Jones referred to the Cape of Good Hope becoming an English possession. Many beautiful varieties of the Cape Heath were sent to this country by Mr. Masson, and Mr. Loudon in his "Encyclopædia" referred to the fact that we are indebted to him for their introduction. Especial reference was made to the form of houses most suited for growing specimens—namely, a lightly built span-roof, running from north to south, with side and top ventilation, with plenty of ventilators so arranged that cold air should not act too strongly upon the plant or pots, and especially sheltering the pots from the sun's rays. Young, healthy plants in 48-pots to start with were recommended, and not too tightly root-bound, thoroughly examining the balls, selecting well burnt clean pots. These to be well drained with clean crocks, with fine pieces over the rougher ones, sifting out the dust. For specimens Mr. Jones uses a liberal supply of drainage, much depending upon this and its being so arranged that the soil is not washed into it. Care must be taken in repotting that the ball is not dry or too wet, and potting most firmly. The soil recommended consists of good sound peat, not too spongy or too adhesive, breaking it into lumps according to the size of the pots to be used, not riddling the soil, but using all together, adding one-sixth of silver sand, a little broken charcoal, adding also a good sprinkling of the dust-like bits of broken pots sifted from the drainage crocks prepared for the repotting, for by keeping the soil porous and sweet the roots soon fasten to this gritty matter and enjoy it. Mr. Jones recommends repotting at almost any time rather than in very hot summer weather. Not to pot too deeply, keeping the ball a little higher than the soil, but taking care that this is quite half an inch below the top of the pot, so as to allow plenty of water space. Ericas require careful hauling, so as not at any time to be allowed to get too wet, and never too dry, and in hot weather frequently syringing about the pots, not the plants. Mr. Jones is no advocate for the use of artificial manures, although admitting that in some cases it may be beneficial. He uses only soot water, the soot is placed in a bag, and the bag placed in water, using the water in a com-

paratively clear state. It was an excellent paper, treating thoroughly the subject, and it was followed by a capital discussion by several practical gardeners present.

PROPAGATING HERBACEOUS PHLOXES.

APRIL is a very suitable month for the propagation of these Phloxes, and a good place in which to strike the cuttings is a dung frame. If freely supplied with water the cuttings will emit roots in a fortnight or three weeks, when the plants may be potted singly. After having fairly rooted into the new soil may be transferred to a cold frame, and eventually planted out. The most suitable cuttings which it is possible to have are those young shoots, which at this season are being produced in quantity. Select these when 3 or 4 inches long, and insert in sandy well drained soil, either in pots or boxes. The cuttings of these Phloxes need so little preparation that they may be inserted almost as removed from the stock plant, for they root freely not only from the joint but up the stem between the joints, so that if the lower are removed the operator will have done all that is requisite. They thoroughly enjoy generous treatment, and if they have abundance of water during dry weather the result will be a rich and varied display in the coming autumn of their massive heads of flowers. Like the Chrysanthemum, they should never receive a check. Few plants are more effective when well done, and none so miserable when neglected. Another point of importance with these plants is to make new plantings annually and discard all stools at four years old, as by this time they will have impoverished the soil, and will have become a thicket of young and weakly shoots.

In planting dig deeply, apply manure freely, and plant somewhat deeper than usual with most plants, on account of their making a great quantity of surface roots. If they can be given a position where they may be saturated two or three times weekly so much the better. A good selection of these plants will be found in the following list:—Whites: Jeanne d'Arc, Independence, Queen of Whites, Virgo Marie, Thos. Chisholm. Of mauve or lilac shades, Hendersoni and Mauve Queen are good; vermilion scarlet, Coecinea; purple, Purple King and Pius Ninth; salmon red, A. F. Barron, Lothair, Roi des Roses, and Louis Van Houtte. Of whites with coloured centres: Edith, David Syme, Richard Wallace, Jenny Grieve, Madame la Comtesse de Turenne are among the best; while from crimson we would take Madame Versehaefelt, Gloire de Neuilly, Countess of Brevalban, and Splendour; and apart from these there are numbers of intermediate and varying shades.—J. H. E.

ROSE STOCKS.

I GATHER from Mr. P. Gilmore, jun.'s remarks on this topic that he has not himself tried budding on the seedling Briar. If he has, surely he can understand why Roses thus budded should be somewhat more expensive than others. The Briar or Manetti cuttings grow out chiefly at the top of the cutting, not so the seedling Briar. Some years ago when I could stoop fairly well, my kind friend, Mr. G. Prince, at my request sent me 200 seedlings in the autumn. Each hundred formed a little bundle about the size of my arm, and a crow-quill was much larger than the size of many in the bundle, the length being about a foot. My first impression was to throw them all away as useless; but, however, I thought better of it, and having at that time plenty of room in my garden I planted them in rows 3 feet apart from row to row, and 6 or 8 inches between the plants. There, thought I, you are not worth much, but you may take your chance. I did not expect any would be budded. Taking care that the earth kept close to them through the winter they did take their chance, and when budding time arrived it was a sea of Rose branches. Thorns! Yes, a few. Sharp, rather. I was simply thunder-struck at the growth. These little crowquills were the following autumn sending out shoots in all directions, and many of these as thick as my little finger; and these shoots, instead of growing upwards as in cuttings, started from the ground; not a few beneath the surface if the plant had been put in too deep.

Well, when I began to attempt budding, the scratches were lovely. Taking the end of a row, I began by clearing off the shoots that were near the surface of the ground and only leaving two or three that grew upwards; but when I came to clear the stem for the bud I found another difficulty, that was that in half the stocks it was impossible to find $1\frac{1}{2}$ inch of the stem sufficiently straight and smooth for an adept to bud in, let alone a tyro. Buds as pushed onwards in the slit soon slipped out and down, and the buds were on the ground and had to be sought for so frequently, and, if they remained, the tying them in bruised them in adjusting them to the twisting stem, that I inwardly remarked I did not wonder that Roses on seedling Briars were more expensive. Apparently they are so, but I believe in the end it is far and away the cheapest stock, and it is also in my experience the best.—Y. B. A. Z.

NOTES AT OXFORD.

THERE is now flowering, for the first time in the Oxford Botanic Garden, a fine specimen of *Beaurnea glauca* that has been in the collection for many years. This interesting Yucca-like plant is growing in

the succulent house, and measures from the rim of the pot in which it is growing to its crown about 6 feet, and is surmounted with a dense spike more than 3 feet in length, bearing myriads of miniature whitish flowers having anthers covered with clear yellow pollen, and present altogether a conspicuous cloud-like mass of creamy pale amber-tinted inflorescence, the effect of which is particularly pleasing.

A re-arrangement of the hardy plants is being carried out in this garden, the beds throughout having been designed anew for this purpose, and when their transformation is completed lovers of this old garden—and there are many—will hail with satisfaction improvements on what has been cherished by them as representing that which has now become the historic order of things in the one-time Oxford Physic Garden.

One of the alterations effected that may be noticed by visitors is that affecting the hitherto Ivy-clad trunks of trees which have been so systematically denuded of their superincumbent growth as to severely alter their aspect. One may, however, hope in respect to these old trunks that their present appearance will not be allowed to be permanent.

It is here, as is the case with other gardens of its kind, we always see something that sets one longing to write in praise of to some particular plant-loving friends, although it may be that their names are by no means unfamiliar to them. At the present time a few gems may be seen in flower that would delight the most fastidious cultivator, and they should be remembered by those who do not already possess them, so that they may be secured when an opportunity offers. They are as follows:—*Narcissus minimus*, *Iris reticulata*, *Chionodoxa Lucilæ*, *Saxifragas oppositifolia alba*, and *Burseriana*, *Galanthus plicatus*, and *Primula rosea*.—A CORRESPONDENT.

INDIAN EXPERIENCES.

(Continued from page 50.)

I RELATE the following as instances of how rapidly some plants foreign to a country when once introduced will adapt themselves to their new conditions, becoming eventually as closely identified with the scenery of the country of their adoption as plants of indigenous growth. During the early days of Coffee planting around Manantoddy, a good number of flowering trees, shrubs, and plants were introduced from the plains, Ceylon, and elsewhere, and cultivated in the gardens surrounding the houses of Europeans. Amongst these plants were several varieties of Lantana, which at once found a congenial home, flowering and seeding most profusely, and quickly extending from isolated garden bushes and hedges surrounding gardens and patches of cultivated land, to covering hundreds of acres of land with a dense mass of thorny and all but impenetrable scrub, giving shelter to numerous reptiles, vermin, and many dangerous wild beasts, eventually changing the character of the landscape for miles around in a marked degree. The bushes forming this Lantana scrub reached an average height of about 10 feet, and included some three or four very pretty varieties, so that when the plants were in flower—and they are nearly always so—the ever-increasing area taken possession of by the plant presented a most striking appearance. But this intruder was by no means welcomed either by Englishman or native, the floral display not being considered sufficient compensation for the drawbacks it entailed. In addition to harbouring noxious animal life, the scrub was supposed to have an injurious effect on the salubrity of the climate. When I first knew Manantoddy it was a very pretty town, the native portion of which formed one long street half a mile in length, running down to the banks of the river Cubbany, a large stream rising on the eastern side of the western Ghaut range, taking a winding course through the Wynaad country, and eventually joining the sacred canary in the province of Mysore. The houses of the European officials and resident Coffee planters were situated on the tops of the neighbouring grass hills, the green and beautiful slopes of which were dotted with clumps of graceful Bamboo, Rose Apple, (*Eugenia*) Jack, and other trees. From the tops of these hills views could be had of the winding Cubbany, its banks fringed with belts of the liveliest green, produced by diversity of plants from the *Osmunda regalis* up to the wild Mango tree. The soil of these hills is of a very poor kind, but with the assistance of the invigorating rains of the south-west monsoon, they produce an abundance of grass for the native cattle and goats which browsed on them. But so steady had been the advance of the Lantana that before I left India in 1877 all the beauty of these hills and grassy slopes had vanished, or at least given place to the steady encroachment of the interloper; and doubtless this advance still continues, and will continue till perhaps every open space in the Wynaad is taken possession of by the Lantana shrub. Something of this kind of encroachment has, I am told, taken place in Ceylon at the lower elevations, and it is considered there that the plant, in the course of time, improves the nature of the soil. This may be the case, as the scrubby plants always present such a mass of evergreen foliage, reaching from their tops down to their ground, no jungle fire seems to run through or damage the thickets, so that a large deposit of decayed twigs and leaves must be yearly produced, which in the course of time may form a sufficient coating for the efficient cultivation of such plants as Coffee and Tea. It may not be a very wild idea to suppose that in some future time a new race of planters may find profitable employment in the clearing and planting of land held so long in possession by the renovating Lantana plant.

A tree, *Poinciana regia*, was almost unknown in the Wynaad till about 1867, at which period it was planted on many Coffee estates at

regular intervals of 10 or 12 feet apart amongst the Coffee plants, and over the whole area cultivated. This was done with the object of supplying shade to the Coffee plant, as a preventive of the evil effects of long continued droughts, and the still more destructive effects of the larvæ of the Coffee beetle, or borer as it was usually called. The Poinciana was raised from seed, and was of rapid growth, attaining the height of 15 to 20 feet in the course of two and a half years, and forming wide heads. Subsequent experience proved that the tree was useless for shade, losing its leaves, or most of them, in the dry season, or just at the time they were most required, so that about the year 1875 it was not uncommon to see in the Wynaad estates from which every trace of the Coffee tree had vanished, and with only Grasses and low undergrowth beneath the spreading arms of the Poinciana trees, which covered the whole of the land originally planted with Coffee. When it is stated that not a few of these extinct Coffee estates were from 100 to 200 acres each, the glory of the Poinciana when in full flower may be more easily imagined than described, doubtless excelling in grandeur anything ever seen in its native island of Madagascar.

Before completing my remarks on the Bamboo district, I would like to make further reference to the borer insect mentioned above as an agent that has played no inconsiderable part in the fortunes of the English Coffee planter in southern India of late years. With Coffee realising £100 per ton and upwards, with the rapid and full maturity of the tree on Bamboo soil, and the splendid yield of from 10 to 15 cwts. of berry per acre, which was at one time no unusual crop, planters for a time might be excused if they looked upon the district in something of the light of a future El Dorado. But whilst hope was high, and the planter exerting all his energy on the cultivation of the plant from which he hoped ere long to derive a competency, a tiny enemy was secretly at work which was destined at no distant date to blast his brightest hopes, and bring him, in many instances, to financial ruin, the insect working incalculable havoc among Bamboo estates wherever they were situated. In fact, to such an extent did the mischief increase that estate after estate was abandoned in despair, and it is extremely doubtful if at the present time there is in existence a single Bamboo estate in the district I am writing of. The author of all this widespread destruction was the larva of a species of the Coleoptera, and although it really began its work on the Coffee plant about two or three years after planting, it did not usually reveal itself by the death of the trees till the fourth or fifth year. The perfect insect, in the form of a winged beetle of about an inch in length, with brown wings and brown and yellow body, made its appearance about the month of May, but was never seen in any great numbers. The eggs were most likely deposited under the bark of the Coffee trees during that month, the larva afterwards making its way into the interior of the stem, the larger branches, and even the roots, till these were so completely eaten and tunnelled that it required but very slight exertion to break the tree off, which usually happened at the collar or close to the ground. This could be done before the actual death of the tree, and so completely was the tree gnawed and eaten in most instances that its existence for many months must have depended solely on the comparatively uninjured state of the bark.

The attacks of the insect were by no means limited to the Coffee trees grown on the Bamboo land, those on the Ghaut slopes receiving a fair amount of attention on the part of the beetle, but with rather different results. Instead of the tree perishing in the fourth or fifth year of its growth, as was the case on the Bamboo land, it maintained its health and strength—at least to all appearance—and kept on bearing crops for a great many years, although eaten by the larva to as great a degree as trees on the neighbouring Bamboo estates. This might probably be traceable to the cooler and moister nature of the climate, higher elevation, nature of the soil, and other causes.

The state of affairs at last became desperate with those who had invested large sums of money in the opening up of Bamboo land from the destructive inroads of this puny insect, and planters began to complain loudly both through the medium of the newspaper press of the Presidency and the Planters' Association of Wynaad. These complaints and discussions eventually arrested the attention of the Government of Madras, and some time about the year 1866 they deputed Dr. Bidie, M.D., of the Madras Medical Establishment, to proceed to the Coffee-growing districts of Coorg, Wynaad and the Neighbourhood, and make a thorough investigation into the cause of the widespread destruction by the borer insect. Dr. Bidie was well known for his scientific attainments, and in the opinion of the Government performed the work allotted to him ably and well. At the conclusion of the tour his report on the matter was printed and published by the Government, who also accorded their best thanks to Dr. Bidie for the way he had conducted the inquiry. The report was not received by the majority of planters at the time with any great amount of favour, it being thought that the Doctor did not spend sufficient time in the different districts, and instead of visiting representative estates, as it were, only in each district, he ought to have made a more comprehensive examination of the subject by visiting Coffee estates labouring under more varied conditions. I remember, however, that my impression at the time was that Dr. Bidie's report was an excellent and valuable one, and contained numerous hints with regard to sites of estates, manuring, and general cultivation that it would have been better had the planter more fully and promptly acted upon than he did. On one point of the report, however, planters of all shades of opinion agreed—namely, that the recommendation of growing the Coffee plant under living shade so urgently pressed by Dr. Bidie as the greatest hope the cultivator had of holding the borer in check, and thus prolong-

ing the existence of his plantation, was a sound one, and one that was at once taken advantage of by both Europeans and natives.

Trees of various kinds were allowed to grow up spontaneously on old plantations, whilst such trees as Artocarpus, Ficus, and the splendid Poinciana above alluded to were raised in large quantities from seed, and the seedlings planted simultaneously with the Coffee on young clearings with more or less success. Dr. Bidie admittedly obtained his idea of the beneficial effects of living shade on the Coffee plant from observing, during his tour of investigation, small patches of Coffee of great age and luxuriant growth nestling close around the stems of the Jack tree (*Artocarpus integrifolia*) near many a native dwelling, and yielding fair crops when not a single Coffee tree was to be seen in the open in the near neighbourhood. He took up this fact and pressed it upon the notice of planters with considerable success and benefit; and although the subsequent system adopted of cultivating Coffee under shade did not prove a complete death blow to the borer, it was unquestionably a step in the right direction, extending as it did the limit of the plant's existence, planters being compensated for the reduced annual yield of crops by the diminished growth of weeds and consequent reduced annual working expenditure.

Dr. Bidie was also a great advocate for high cultivation as a means of sustaining the plant in robust health, and thus enable it to resist more effectually the attacks of the grub; but as there was in many cases a difficulty in obtaining manure in sufficient quantities to be of any real service over a large area, shade was resorted to as a substitute. The Poinciana proved useless as related, but better results attended the planting of the Jack tree and numerous species of Ficus. *F. glomerata* was amongst the best, as it was a deciduous tree, losing its leaves during the cloudy weather of the monsoon, by the end of which a new crop had developed. Coffee under this tree always looked green and healthy, although of course not so robust in stem or branch as that grown in the open. Seeds of these numerous species of Figs were largely deposited by birds over the ground, and wherever the seedlings appeared they were carefully attended to, and pruned as they grew up, and as their growth was very rapid an estate was soon covered by what appeared at some distance to be simply a part of the surrounding jungle. Several species of *Artocarpus* which are found wild in the district were allowed to grow up in a similar manner, as were many other kinds of trees. The Jack tree was either raised in nurseries, or the seeds were placed in the pits prepared for the young Coffee trees, and allowed to grow up together. This for some reasons, was considered the best shade of all, but the branches and leaves formed such a dense head that they required pruning at intervals. Cattle, and deer too, were extremely fond of browsing on the leaves, so that the young plants required considerable tending before they got beyond the reach of their enemies. The trees fruited freely, and generally began to bear about the fifth or sixth year after planting. There was a considerable variety to be found on an estate where great numbers of the tree were planted distinguishable by habit of growth, form of fruit, and shape of leaves. It was really a strange and wonderful sight to see a large area covered by these trees in the fruiting season. The huge fruit (in many instance a single one being quite a load for a man) hanging in clusters from the stems and thicker branches. The seeds are much relished by the natives, and are not despised by some Europeans. They are usually roasted before being eaten, and the yellow pulp surrounding them is also eaten.

The system of growing Coffee under shade was not, I believe, first practised in the Wynaad and Coorg, but was adopted many years before in the district of Munzerabad in the province of Mysore; but rather a different plan was adopted. Instead of the land being at first entirely cleared of jungle preparatory to the planting of Coffee, only the undergrowth was cut over and burned. The remaining trees of higher growth and various kinds were thinned out only, and the Coffee plants put in rather thickly under the shade of those that were left. The drip from the high trees retarded the growth of the Coffee considerably; but eventually it got a good hold of the ground, but always displayed stems and branches of attenuated growth, estates yielding regular but small annual crops.

The shade experiment in the Wynaad though, as I have stated above, did not prevent but only delayed the destruction of the Bamboo estates. By degrees the trees got thinner and thinner, and as it was sheer folly to attempt to replant with any hope of success plantations were gradually left to themselves, it being no longer of any use continuing their cultivation with a view to profit. Grass and other noxious weeds soon gained the mastery, the jungle fires of the ensuing dry season completing the destruction the borer had begun. Before the total extinction of the Bamboo plantations the leaf disease had made its baleful appearance, assisting the borer in the work of ruin, and no amount of shade was of any avail in keeping off its attacks in the slightest degree.—PLANTER.

(To be continued.)

CALCEOLARIAS IN THE FLOWER GARDEN.

CALCEOLARIAS are familiar to all who have had anything to do with flower garden embellishment during the last twenty or thirty years, but they are not now so common as they were. Like the good old Holly-hock, they have not succeeded so well in recent years as they did at one time, but they are as valuable for flower-bed decoration as ever they were, and both the dark brown and yellow-flowered varieties are exceedingly showy in July, August, and September, and even later. We have always kept them, and have several beds of them in the flower garden annually. They are wintered in cold frames, and do not require any heat.

As a rule, much leaf soil and light material is forked into flower beds. This suits many plants, but not *Calceolarias*. In fact, I am of opinion that their failure in many cases has been brought about by sand and leaf soil, as in our case we not only succeed in keeping them in masses throughout the whole season, but we rarely lose a plant. We avoid leaf soil and sand or light soil for them, as a cool rather heavy soil suits them. Cow manure is the best for them, and a good quantity of this may be dug into the soil previous to planting them. If the soil is very light a good dressing of heavy soil may be added with the manure, and they can all be planted out by the middle of April. This is another great advantage in dealing with *Calceolarias*, as they can be planted early, and do not take up valuable space in the houses or frames in April or May, when every available inch of accommodation is required for other more tender plants. Their early planting also enables them to make a grand display early in the season, and this is very desirable in the majority of gardens. The growths of *Calceolarias* are somewhat brittle, and if allowed to become tall are apt to be blown over and broken, but if the young growths are pinched a time or two the plants become very dwarf and bushy, and this is the best form they can assume.—M.



CYPRIPEDIUM HIRSUTISSIMUM.

THOUGH familiar to most Orchid growers now *Cypripedium hirsutissimum* invariably attracts much attention when in flower, its distinct appearance rendering it prominent even in a large collection. Variations are occasionally seen, but these are not usually so marked in character as those of other species, and the divergence from the originally introduced type is slight. A comparison, however, of the remarkable variety from Baron Schröder's garden (fig. 52) with the "Botanical Magazine" plate of 1857, or with any of the ordinary varieties now in cultivation, will show that in all respects it is greatly superior. The size is especially noteworthy, the petals being 3 inches long, the apical portion forming a broad rounded lobe $1\frac{1}{2}$ across and about the same in depth. The dorsal sepal is also of great size, being 2 inches in diameter. The colouring is similar to the usual forms, but much darker, the petals greenish at the base, then a few dark spots and a deep purple tip. The dorsal sepal is margined with green, and has a purplish black centre, the lip neat in form, green, with a purple tinge. The margins of the sepals and petals, with the peduncle, are thickly clothed with short black hairs, to which character the plant owes its specific name.

Cypripedium hirsutissimum is a native of Java, and was sent to Kew by Mr. Parker of Hornsey, who it is said, purchased it at a sale. It was named by Lindley. It requires a good temperature, like the other tropical Old-World *Cypripediums*; but at The Dell it thrives in the *Cœlogyne* house.—C.

AN ORCHID SOCIETY.

I AM glad to see in your last issue that Mr. Cummins draws attention to the want of an Orchid Society. It is indeed remarkable that so large, so wealthy, and so intelligent a body should never have yet banded themselves together to form such an association. No doubt the R.H.S. has always aspired to supply this want, but how it succeeds in the attempt requires no comment from—B. D. KNOX.

ORCHID FLOWERS.

MR. JAMES CYPHER, Cheltenham, sends a few choice Orchid flowers remarkably fresh and bright, and amply proving how well they travel when carefully packed. One of the stout cardboard parcel post boxes was employed. At the bottom of this was placed a layer of fresh, slightly damp, moss. This was covered with tissue paper, and upon that the flowers were placed firmly, and over them another sheet of tissue paper. The flowers arrived as fresh as if just cut, and included the following—*Cattleya Trianae*, a very handsome variety in the way of *Leeana*, the petals $2\frac{1}{2}$ inches broad, of a soft pale rosy hue; the lip is bold, $1\frac{1}{2}$ inch across intensely rich crimson running into the throat $1\frac{1}{2}$ inch, beyond is a fine gold band and a nearly white base with pale crimson margin; *Cattleya intermedia*, extremely elegant and well-coloured, the apical lobe of the lip of a similar warm crimson hue to the best forms of *C. Trianae*, contrasting beautifully with the pure white throat and column and the delicate purplish pink hue of the lateral lip; lobes arching over the column and the equal sized sepals and petals. This *Cattleya* is one of the most admired when in its best condition, and a specimen in Mr. Cypher's nursery with fifty-four flowers indicates its good qualities in a striking manner. *Dendrobium Wardianum*, a distinct and handsome variety, with broad slightly reflexing sepals and petals, white tipped with dark crimson, and of glossy wax-like substance; the lip is great size, over $1\frac{1}{2}$ inch in diameter, open, rich golden yellow in the throat, with two large maroon spots at the base, one each of the column, with a white band towards the apex and a purple tip. *Dendrobium nobile pulcherrimum* is a pretty and elegant variety, the flowers of moderate size, but the exceedingly dark crimson blotch in the centre

of the lip is bordered with pure white, the sepals and petals also being very slightly tinted with crimson towards the tips. *Dendrobium Farneri album* is pure white except the lip, the lower half of which is bright yellow; and *Odontoglossum aspersum*, the supposed natural hybrid between *O. Rossi* and *O. maculatum*, is represented by a much darker and finer flower than is usually seen.

THE LITERATURE OF GARDENING.

(MR. W. PAUL'S LECTURE.)

(Continued from page 270.)

WE have now reached the opening of the present century. The Horticultural Society of London was founded in 1804, and this gave a great impetus to the literature of gardening. Thomas Andrew Knight was an early President of this Society, and wrote many valuable papers in its "Transactions." William Salisbury's "Hints to the Proprietors of Orchards" (1817) was a book much thought of in its day. Henry Andrews' "Engravings of Heaths" (1802), "The Botanists' Repository" (ten vols. 4to), "The Heathery" (1804-14), and works on *Roses* and *Geraniums*, are valuable, as containing beautiful coloured engravings of the popular flowers of the time. Walter Nicol wrote a series of good books—"The Scotch Foreign Gardener" (1798), "The Practical Planter" (1799), "The Villa Garden Directory" (1809), "The Gardener's Kalender" (1810), and "The Planter's Kalender" (1812). William Pontey was also one of the best writers of this period. "Rural Recreation; or, The Gardener's Instructor" (1802), "The Forest Pruned" (1808), "The Profitable Planter" (1809), and "The Rural Improved" (1823), were practical works held in much esteem, and obtained a large circulation.

We come now to the greatest name in the whole range of garden literature—John Claudius Loudon, the friend of Jeremy Bentham. His "Encyclopædia of Gardening" is an extraordinary book of nearly 1500 pages octavo, closely printed. The first edition was published in 1822, the fifth in 1827. It is written in a clear pleasant style, profusely illustrated, and enters more or less fully into every branch of gardening. The value, too, is much enhanced by the fulness and accuracy of the general index. Loudon wrote also an "Encyclopædia of Plants;" "Hortus Britannicus," a catalogue of all the plants indigenous to, cultivated in, or introduced to Britain; "The Arboretum et Fruticetum Britannicum"—a splendid work in eight octavo volumes, profusely illustrated. I have heard it said, and think it probable, that this work cost £20,000 in bringing out. His accomplished wife states that on the conclusion of this work in 1833, "In addition to the large sums in ready money he had paid to the artists and other persons employed during the progress of the 'Arboretum,' he found at its conclusion that he owed £10,000 to the printer, the stationer, and the wood-engraver who had been employed on that work." Loudon wrote several other works, all worthy of his high reputation, and was for some time editor of the "Gardener's Magazine" and the "Magazine of Natural History." There is nothing in my life that I look back upon with more satisfaction than that I had the great honour of reckoning Loudon and Lindley—another great writer on gardening, of whom by-and-by—among my personal friends. Loudon, though chary of his time, was naturally a sociable man, and had many friends, and was always ready to recognise and lend a helping hand to rising talent and merit of every kind. The writings of his amiable, accomplished, and clever wife, principally addressed to ladies, are still in much request, especially "The Ladies' Flower Garden," in six quarto volumes, beautifully illustrated.

Other writers of this kind were Griffin, Haynes, Hooker (who published "Pomona Londinensis," quarto, a book on fruits, with forty-nine beautifully executed plates), Cushing, Hogg, Lyon, Emmerton, Mean, and Brookshaw. The "Transactions" of the Horticultural Society of London and of the Caledonian Horticultural Society now began to play an important part in garden literature, some valuable papers being contributed thereto by various authors.

Robert Sweet earned by his writings the gratitude of lovers of plants and flowers. "The Botanical Cultivator" (1820), "The Hortus Britannicus" (1826), "The Geraniaceæ" (1820-30), "The Cistineæ" (1825-30), "The British Flower Garden," "Flora Australasia" (1827-28), and "The Florists' Guide" (1827-32), are beautiful and useful books.

Henry Phillips published a series of well-written and interesting books. "Pomarium Britannicum" (1820), "The History of Cultivated Vegetables" (1822), "Sylva Florifera" (1823), "Flora Domestica" (1823), "Flora Historica" (1824), "Companion to the Orchard" (1831). William Cobbett wrote "The American Gardener" (1821), "The Woodlands," a good book (1826), "The English Gardener" (1833), which are distinguished by the strong common sense and clear style of this author. Other writers of this time are Patrick Neill, Morris, Harrison, Chandler, Billington, and Loddiges.

Harrison commenced "The Floricultural Cabinet" in 1833, a useful and elegant work, which was published monthly, and extended to twenty-seven volumes. Loddiges began "The Botanical Cabinet," a high-class work, in 1817, which stopped in 1833; it contains coloured plates of 2000 different plants. "The Botanical Register," also a high-class periodical, commenced in 1815, and stopped in 1847 with the thirty-third volume. The later volumes of this periodical were edited by Dr. Lindley. "Maund's Botanic Garden," my copy of which, in thirteen volumes, is not dated, is also a beautiful book, the illustrations numerous, artistic, and life-like. "The Horticultural Register," edited

by Paxton and Harrison, and began in 1832, extended to six volumes only, and "The Floricultural Magazine," by Robert Marnock in 1836 to a like number. "The Magazine of Botany," by Paxton, begun in 1834, had a longer and more successful run, extending to fifteen volumes, and these have been re-edited and republished recently. George Glenny, for some time editor of "The Gardeners' Gazette" and "The Horticultural Journal," and author of many treatises and papers on florist's flowers, was a clear and forcible writer, and helped much to popularise that particular branch of the art. The "Pomological Magazine" begun in 1827, is now usually met with in three volumes, and contains coloured plates and descriptions of many of our best fruits.

"The Florist," commenced by Edward Beek in 1848, closed in 1882. As I was for some time part proprietor of this periodical I will only say that contributions to its pages were made by some of our soundest and best writers on gardening, and the illustrations of fruits and flowers were generally acknowledged to be faithful representations creditably executed. Works of this period entitled to high commendation are Johnson's "History of Gardening" (1829), McIntosh's "Practical Gardener" (1828), McIntosh's "The Book of the Garden" (1853), Thompson's "Gardener's Assistant" (1859).

Mr. W. Paul then referred to the establishment of the horticultural

fruits who has evolved our delicious eating and culinary Apples from the wild Crab of the hedgerows, and improved so many other fruits and vegetables? and among flowers only consider the increase in size and beauty of our Roses, Pansies, Hollyhocks, and others, when measured against the wild forms from which they are descended. The value of these acquisitions will be best appreciated by imagining the blanks that would be created by their withdrawal from our hearths and homes. Now it must be admitted that these improved Roses are the work of the gardener, and if their value be fairly and impartially estimated, I think none will deny that he has reason to rejoice over the fruits of his labour. I claim for him no creative power, but merely the intelligent use of the powers given to him by his Creator, whereby he exercises a dominion, more or less complete, over all created things.

In the progress of which we have spoken, we find evidence which we cannot ignore, that gardening, viewed either as an art or a science, is capable of indefinite extension and improvement; while he who labours in this field cannot but be alive to this important fact, the mere on-looker has not hitherto fairly and fully recognised it. But as alchemy was the forerunner of chemistry, and astrology of astronomy, so surely will the practical gardening of the past and present ages result in a grand future of horticulture. Thanks to the literature of gardening, there is already



Fig. 52.—CYPRIPEDIUM HIRSUTISSIMUM.

papers, and after giving a long list of works by recent and living authors he concluded his lecture in these terms:—

We have seen that the literature of gardening commences with the earliest historic period. The work goes on through Jews, Assyrians, Persians, Carthaginians, Greeks, and Romans to the fall of the Roman empire, the beautiful as well as the useful attracting the notice of these several people. On the revival of learning in the Middle Ages the Italians and Dutch are the earliest in the field, and are followed by other nations—the gardener, the herbalist, the botanist, sometimes working on their own individual lines, and sometimes on mixed lines, succeed in due order. Finally gardening and botany separate so far as literature is concerned, although the gardener then, and more than ever now, furnishes the physiological botanist with facts, while the botanist renders the gardener essential service by his labours in the fields of systematic and physiological botany. The botanist's figures and descriptions of Nature's plants, and above all his discoveries and publication of the facts of vegetable anatomy, disclose to the view of the gardener new fields for the exercise of his industry and skill, which he joyously avails himself of, and the surface of the earth grows more productive and more beautiful by the successive uprising of new forms and tints. While claiming for the gardener the larger share in this work of progress, I have no wish to depreciate the labours of the botanist, or the flowers of Nature—the botanist's flowers. I admire their simple beauty. I have often paused in wonder at their adaptability to the situations they naturally affect. I have revelled amid their pleasant and fascinating associations. But as a gardener I am now looking at the question from the gardener's point of view. Amongst vegetables, who has developed our present valuable forms of the Potato from the small and unpalatable tuber introduced from South America? Among

at hand a vast chaos of unarranged facts, which only require assorting and systematising to form a solid structure of correct proportions and rare beauty. It is not the materials, but the workman—a horticultural Davy or Newton—that is wanted.

SILICA IN SOILS.

MR. ABBEY in an article on soils (page 255), in which he gives much valuable advice, says, amongst other things, that it is advisable to apply farmyard manure to loam and clay soils, but he assigns a very peculiar reason for so doing, and that is—because such manures contain silica. Further on, in the same paragraph, he states that, "silicates being deficient [in loam and clay] that [farmyard] manures are very valuable."

I do not wish Mr. Abbey to think that I am anxious to pick holes in what he says—after all it is only a question of theory—but I think he is wrong about the silica.

Dr. Voelcker's evidence. Three analyses of soils from clay pastures, by this eminent authority, give respectively seventy-two, sixty-nine, and seventy-seven per cent. of silica; and further, referring to grain crops, and I know no other crops that contain such a quantity of silica as these, he says, "Nearly two-thirds of the total amount of mineral matter in the grain and straw of Wheat consist of silica, of which there is an ample supply in almost every soil. The restoration of silica need not trouble us, as there is not a single instance on record of silica, even in a soluble form, being applied to the land with the slightest advantage to Wheat crops."

Now what does Johnston, edited by Voelcker, the two edited by Cameron, say? "Silica is abundant in all soils." Three analyses of soils

by Johnson give respectively sixty-four, eighty-three, and seventy-seven per cent. of silica. Going back to 1840 Sir Humphrey Davy says, "Silicic acid occurs . . . and forms a large part of almost every soil." If these authorities are right, I do not think we "need trouble much about silica."

Now to another little matter. Mr. Abbey, I think, may fairly be understood to infer that land cannot be kept up to the mark or improved by means of artificial manures alone. If the readers of the Journal are interested in the matter they may be surprised to hear that on clay land near Sawbridgeworth, in Hertfordshire, a gentleman named Prout has been growing corn, crop after crop, rather extensively too, on the same land, using only artificial manures (something besides the ammonia salts though) since 1861. He has acted under the advice of Dr. Voelcker, who states that the soil is now richer and in a better state to produce corn than it was the first year of the experiment.

I grow Roses, or try to do so, and I admit that up to now my experience is like that of the old farmer, that "there's nothing like muck," but in the time to come I look forward to the production of Roses and all other crops, whether for the gratification of our mental or physical appetites, by means of artificial manures properly applied, and with a full knowledge of the constituents of the plants and flowers we wish to produce.—D. GILMOUR, JUN.

THE COLOURS OF LEAVES AND FLOWERS.

THE fifth lecture of the season at the Lincoln School of Science was delivered by Dr. G. M. Lowe recently, the subject being "The Colours of Leaves and Flowers." A number of experiments added greatly to the interest of the lecture, which was further illustrated by diagrams, &c.; valuable assistance being also rendered by Mr. Henry Mantle with his oxy-hydrogen lantern. A beautiful collection of choice plants and flowers was likewise kindly lent by Mr. Joseph Ruston for the purposes of the lecture.

Dr. Lowe said that fortunately for him the most difficult part of his subject, that of light, had been carefully explained by Dr. Griffiths in that room a fortnight ago; therefore, it was only necessary for him to refer to that point very briefly. What he wished them to remember was this, that white light, streaming from the sun upon the earth, gave to natural objects an immense variety of colour, which disappeared at sunset, or when the light was withdrawn. If, instead of sunlight, the white light derived from burning magnesium, the oxy-hydrogen limelight, or the electric light, was supplied, the colours were again manifested; but if the light of the coal gas flame was substituted, then many colours, such as the violet and purples, were altered, or were altogether lost. This fact was still more strikingly shown by means of the yellow light of the sodium flame. He also pointed out that if a ray of sunlight was received on a properly arranged prism, it was immediately broken up into the colours of the rainbow; it was, in fact, analysed; and if a white screen was placed at a convenient distance, the colours would be received upon it, and could be examined. Those colours, they would see on the diagram, were red, orange, yellow, green, blue, indigo, and violet. It would be observed at once that green occupied the centre of the system, and from it the colours ran through blue to violet on the one side, and through yellow to red on the other. He called special attention to this fact, because it greatly explained his case. Green combined in varying proportions with blue or violet would produce one set of colours, and, similarly, green combined with red produced an entirely different class. He (the lecturer) did not know of a single instance in the whole range of the vegetable kingdom where those two classes were visibly mixed.

If a green leaf was examined optically by means of the modified prism called a spectroscope, it was found that extreme red was present; then occurred a deficiency of coloured light, followed by orange red; next came orange, then the yellow, greenish yellow, and yellowish green; after that followed a little full green, the rest of the spectrum consisting of a little weakened blue and violet. They would recollect that all these colours existed in a green leaf, but yet that it appeared green. An inspection of the diagram showed that the yellow occupied a position between the red and the green. This suggested the probability that the yellow was a combination of those two colours, and this was found to be so by experiment, for although red and green pigments would not by mixing form yellow, it might be obtained in other ways, either by using two prisms, or by placing red and green colours on a disc and rapidly rotating it. This was demonstrated by two prisms, and by means of rotating colour discs. By making a disc composed of red and green—50 per cent. of each—taking the semi-circular form, and laid on a black ground, on setting the disc in rapid motion a yellow was the result. The lecturer here paused to point out that the old theory maintained by Sir David Brewster that yellow was a primary colour had exploded, as it had been shown that yellow was a compound colour, composed of red and green. On the other hand, it was proved that green, which was formerly regarded as a compound colour, composed of yellow and blue, was a primary colour, for it was impossible by mixing the coloured lights from any known yellow and blue surfaces to form green. On setting a zone of yellow and blue in rotation, they found accordingly that, instead of green, white light was produced. Hence the three primary colours were green, red, and blue—not yellow, red, and blue. Reversing the spectrum of a green leaf, they found the result was a yellowish green—as it was generally seen by daylight.

Although it seemed reasonable to assume that vermilion and emerald green, combined in certain proportions, would produce leaf green, it was found that an important element must be added—viz., black. Black entered largely into the structure of leaves, and its presence was not difficult to account for. On examining the lower surface of a leaf by the aid of a microscope, thousands of little openings or mouths were seen, called stomata. As many as a quarter of a million had been computed in a single square inch of the lower surface of a Lilac leaf. It was through these openings that the carbonic acid, which was so largely distributed throughout the atmosphere by the respiration of animals, was absorbed. It appeared to enter in a gaseous state, passing into the cells, where it became chemically decomposed into its two elements, carbon and oxygen; the carbon was retained

and blackened the leaf, and the oxygen was set at liberty to purify the air. They had now three elements to start with; and by way of preliminary trial the lecturer placed them in varying relative proportions on discs, and set them in rapid motion. The first disc, red and green in proportions of one red to two green on black ground, produced leaf green. But if the proportion were so altered that the red preponderated, the green quite disappeared, as in the following disc, which represented the reddish brown tints of autumnal leaves, as in the leaf of the Hornbeam—red 20, green 10, black 70. When equal, the yellow element prevailed, and the browns partook of cinnamon in their colour.

The lecturer said he would now gently touch on a difficult subject. In addition to the colours reflected from surfaces, there was also reflected a certain quantity of white light, and different colours reflected different quantities of white light, which was called their luminosity. Thus, taking the luminosity of white paper at 100, emerald green reflected 48·6 per cent., English vermilion 25·7 per cent., and so on. They would here inquire why a leaf was green, a Geranium scarlet, or an Arum Lily white. In a globe before him was a fluid which appeared perfectly black. By adding pounded chalk it changed immediately to a blue colour. Why was that? Because the white particles acted as mirrors to reflect the light, and reflected the light after it had gone to some depth in the fluid. This was what took place in the green leaf and petals of flowers. In the case of the white Lily, if the petal was a sheet of thin glass, they would not have seen that white colour; a little light would be reflected from the front and back surface, but the petal of the Lily was composed of a vast assemblage of little cells, from the walls of each of which partial reflection took place, so that it resembled finely powdered glass, which appeared white because each little surface reflected the light, although a polished sheet of glass would not be white. The little cells of the Lily resembled the minute fragments of glass, and reflected white light. The same thing took place in the case of the Geranium; the light was absorbed and reflected by the cell surfaces, but the light became tinted by the coloured juices in the cells of the leaf structure. It would therefore, said the lecturer, be easily understood that a certain amount of light escaped the influence of the colouring matter, and what was reflected from this was luminosity. A method of estimating the amount of luminosity had been discovered by Dr. Gorham, of Tunbridge, to whom he (Dr. Lowe) was indebted for much valuable assistance in preparing this lecture. Dr. Gorham effected this by means of a circular zone, composed of equal parts of white and black—which when set in rapid motion gave a grey—which was the medium grey of scientists, the half tone of artists. Its utility depended on the property it possessed in common with other grey tones of developing and rendering visible to the eye the complementaries of colours, and of black and white. What was a complementary? It was that which was wanting in a given colour to complete or supply the deficiency of white light. White light was composed of seven colours; four were composed by intermixture of the other three, which were called primary—viz., red, green, and blue—which together made white light. If they took any one of them, the other two mixed gave the complementary colour. This was practically tested by interposing pure grey between the eye and the colour, the complementary colour being found to be of pink, green; of green, pink; of white, black; of black, white. By means of the ring it was possible to test exactly the amount of luminosity given off by coloured surfaces, and still further by leaves themselves, and thus to estimate the proportions of the colours that made up the tint of the leaf or flower under examination.

The lecturer went on to inquire a little into the cause of the colours of leaves and flowers. Taking green as the basis, they found it the universal tint throughout the vegetable world. It appeared to be due to the presence of a highly organised substance called chlorophyll, or leaf green, which was not soluble in water, but highly soluble in alcohol and bisulphide of carbon. It was transparent in solution, and underwent change of colour under certain conditions. Chlorophyll appeared to bear similar relations to plant life that blood does to animals. Under the influence of light it decomposed the carbon and oxygen into its elements, and elaborated the juices of plants. In the absence of light it changed to a lighter colour. In the presence of vegetable acids, such as tartaric and malic acids, it passed from a green to a yellow, an orange, or a red. In this condition it appeared to lose its vital or chemical influence over carbon and oxygen, as oxygen appeared not to be evolved from coloured leaves and flowers. In the presence of alkalies, chlorophyll was converted into green blues, blues, purple, and violet. Vegetable colours generally showed these peculiarities with regard to acids and alkalies, the blues becoming red under the influence of acids, and the reds blue on the addition of alkalies. The nearer the colour was to green the less sensitive to their influence it became, green itself remaining obstinately green or yellow brown unless operated on in its living state. The remarkably beautiful colours of flowers was, with the exception of garden varieties, the result of the survival of the fittest. Since the days of Darwin they had ceased to say that the ornamentation of plants and animals was for the delight of mankind. Of all created beings man alone was independent of colour, whilst to plants and fishes, birds and insects, quadrupeds and reptiles, colour was essential to their existence as species. The brilliantly coloured petal or leaf of the plant was Nature's signal to the nectar-eating insect that the repast was ready, but the entrance to the refectory was so arranged that the recipient must perform the work of the fertilisation of the plant in repayment for its meal. When the flower was inconspicuous, coloured leaves acted as the decoy, the Poinsettia and the Croton being examples. Plants that had no such attractive colours would often be lost but that they had other means of propagating their species, as by runners or suckers underground—the Nettle, for instance. Cultivation undoubtedly also determined the colours of leaves and flowers—the first by appropriate feeding, the latter by selection and cross-fertilisation. Experiments in cultivation by starving and feeding were in operation, and he (the lecturer) hoped to have an opportunity of describing the results on some future occasion.—(*Lincoln Gazette*.)

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.

THE spring Show of this old established Society was held in the Waverley Market, Edinburgh, on the first Wednesday and Thursday of the

present north. Owing perhaps to the very cold and unseasonable weather in Scotland for a few days previous to the date of the Exhibition the plants staged were less in numbers than we have seen in former years. In the nurserymen's division Messrs. R. B. Laird & Sons of West Coates Nurseries were (except with Coniferæ) the only exhibitors. With Hyacinths, Cinerarias, Primulas, &c., the competition was better, but in no case was it so brisk as we have seen. The prizes for black Grapes and Apples were the most keenly contested. Vegetables were fairly well represented for the season of the year. Cut flowers were not so good.

The following were the exhibits most worthy of note:—For a table of plants 20 feet by 5 feet, arranged for effect, Mr. J. Donaldson, Murrayfield, received the first prize. Messrs. R. B. Laird & Sons were the only exhibitors in the corresponding class for trade growers, and were awarded the highest premium for a massive table 40 feet by 10 feet; large loosely trained Azaleas in flower with a few Palms being the plants arranged for effect, the "ground" being freely docted with smaller Azaleas and Ferns. For a table of hardy spring flowering plants Mr. Robertson Munro, Portobello was first, and Mr. Geo. Sinclair, Prestonkirk, second. The first had, among plants of an interesting character, a new Saxifraga, the counterpart of *Burseria* in all except colour, which is of a lemon shade of yellow. It was raised by Mr. Boyd, Faldonside, Melrose, and named *Boydii*, after the raiser. It would also appear to be later flowering than is the type. The four Azalea indica, as well as the single specimen Azalea from Mr. Patterson, gardener, Millbank, were large and in grand condition. *Model*, *Charmer*, *Iveryana*, and *Stella* were the sorts staged, with *The Bride* as a single specimen. The other plants staged were quite small in comparison with these. The same exhibitor took first for four plants in 8-inch pots, also for six stove or greenhouse plants in bloom. Among these were magnificent specimens of *Azalea* *Duc de Nassau*, *Ericas* *profusa* and *coccinea* *minor*, and *Tremandra* *ericoides*. Mr. Grossart, gardener to Jas. Buchanan, Esq., Oswald Road, was first in the class for four plants of the same kind, a very good *Cælogyne* being included. For four Cape Heaths Mr. Patterson was easily first with large and well flowered specimens.

The three classes devoted respectively to six, three, and one Orchid brought out some notably good specimens. Mr. Curror, gardener to G. Douglas, Esq., Eskbank, was awarded first for six, his most notable examples being *Vanda* *snavis*, bearing four spikes; *Cattleya* *Trianae*, with over two dozen blooms; a grand *Dendrobium* *limbriatum* *oculatum*, with about fifty racemes. Mr. Grossart second, a large *Cymbidium* *eburneum* with over thirty blossoms, and a fine *Dendrobium* *nobile* being the best specimens. In the class for three Mr. Patterson was first with not very large but fresh specimens of *Cypripedium* *hirsutissimum* and *Masdevallias* *Veitchii* and *Lindenii*. Mr. Findley, Osborne Terrace, second, and Mr. Dougal, Talbot House, Leith Walk, third. Mr. Grossart, with a six-bloomed *Lycaste* *Skinneri* *alba*, was first for one Orchid; and Mr. McIntyre, The Glen, Innerleithen, second with *Cymbidium* *Lowii* with six spikes. Mr. Grossart also took first prize for four exotic Ferns, the specimens from Mr. Forbes, gardener to P. Neil Fraser, Esq., Canonmills, to which the third prize was awarded, being perhaps the best examples. Mr. Hunter, Lauriston Castle, was first for two plants, and for three *Gleichenias* Mr. Patterson was first, being the only exhibitor. Mr. Grossart had the best *Adiantums*, and Mr. A. W. Paterson, Pillrig, the best *Filix* and dwarf British Ferns. Foliage plants were fresh, but not of large size. Mr. W. Bennet Hanley, Corstorphine, having the best four, and Mr. McIntyre, The Glen, the best eight in small pots. The six Roses in pots from Mr. Patterson were fresh, well bloomed specimens, and to these the first prize was awarded. The best six Cinerarias were staged by Mr. Harkness, Broadmeadows, Berwick, but to these the second prize was given, the first going to much inferior examples. Lilies of the Valley was shown in fine condition; Mr. Grossart being first for three pans, and Mr. Pearson, Bentwood, Corstorphine, second. Several classes were devoted to hardy plants, but of these there is nothing special to record. However, in the case of six alpine plants, Mr. Forrester, Woodcockdale, Linlithgow, staged some well grown plants. The best of these were the pretty *Soldanella* *alpina*, a beautiful potful of *Primula* *viscosa* *nivea*, and equally fine *P. marginata* and *P. decora*, the other plants being *P. rosea* and the white Grape Hyacinth, neither in such good condition. These were passed over for common plants and awarded the second prize. Dutch bulbs were not numerously represented. For twelve Hyacinths Mr. Sime, Ridge Park, Lanark, had the first place with good even spikes, Mr. Kerr, Sunlavs, Kelso, second, and Mr. Pearson third. Mr. Sime was again first for eight spikes, and Mr. Kerr second. For six Hyacinths confined to cultivators who grow the plants without the aid of a gardener Mr. Barrie, Jock's Lodge, Portobello, had the first prize, though we thought those of Mr. Stewart of Haddington rather superior to them. For nine pots Tulips, six of *Polyanthus* *Narciss*, and nine pots garden *Narcissus*, Mr. Grossart was first in each case.

In the cut flower section Roses were the best exhibits. For twenty-four blooms Mr. Walker, gardener to J. M. Richards, Esq., Clarendon, was first with a box of rather small but quite fresh buds; Mr. Bowman, Pittendreich, Lasswade, second. Some of his individual blooms much larger, but on the whole not so good. For twelve blooms Mr. Henderson, gardener to W. Macfie, Esq., Clermiston, was first, several of them being large and good. Mr. Pearson, gardener to Lady Lucy Dundas, Beechwood, staged twelve beautiful *Maréchal* *Niels*, to which the first prize was awarded. *Gloire de Dijon* in the same number were small, Mr. Walker being first for these. In the nurserymen's classes Mr. James Bryson, Helensburgh, was first for twelve blooms, and Messrs. R. B. Laird & Sons second. Not for competition, Messrs. Dickson of Belfast set up the most beautiful collection in the Show, a stand of twenty-four. For twelve trusses of Orchid blooms and for twelve trusses of stove or greenhouse plants Mr. Grossart was first, and Mr. McLeod, Breatham Park, Stirling, second. A few beautiful bouquets were staged, those arranged by Mr. G. McLure, Trinity, being by far the finest, both hand and table bouquets getting the first prizes respectively. For six buttonhole bouquets Mr. McLeod was first, but in the large number of those staged nothing of special note was found.

In the fruit classes Mr. Murray, Culzean Castle, Maybole, had the best Pine Apple, Mr. McIntyre, The Glen, being second; both fruits were good. Mr. McKelvie, Broxmouth Park, Dunbar, had the best dish of Strawberries, good *Vicomtesse* *H. de Thury*, as also the best black Grapes, not large, but fine examples of *Lady Downe's*. No white Grapes were shown. Some

very fine dishes of Apples were staged, several exhibitors setting up large and fresh examples. To Mr. Brunton, Gilmerton, Drem, first prizes for both dessert and kitchen Apples were awarded. The former were, however, largely composed of kitchen varieties, *Cellini*, *Beauty of Kent*, and *Small's Admirable* being represented. Of vegetables there was a fairly good show, Mr. G. Potter, Seacliffe, North Berwick, getting first prize for a really fine collection of twelve sorts. These comprised among others good young Peas, French Beans, young Potatoes, Carrots, and Rhubarbs, besides good unforced produce. From Mr. Milne, Sunnyside, a large collection of salads came. Mr. Potter was also successful for French Beans and Onions, which were fine. A splendid dish of Mushrooms from Mr. Gordon, Niddrie, secured to him the first prize. Among miscellaneous exhibits Messrs. W. Thomson & Sons, Clovenfords, Galashiels, had a table of flowering Orchids, with Palms and Maidenhair Ferns. Among the Orchids were several good forms of *Cattleya* *Trianae*, *C. Lawrenceana*, a good variety of *C. Mendellii*. Among many *Odontoglossums* were *Ruckerianum*, *Sanderianum*, *Andersonianum*, *Rossi majus* in several forms, many of *Alexandrae*. A beautiful plant of *Trichopilia* *snavis* with numerous flowers was quite lovely. Among many *Cypripediums* were *Dominianum* and its variety *roseum*, &c. Messrs. T. Mettlen & Sons, 15, Princes Street, had a very large table very bright with decorative stove and greenhouse plants. Messrs. Ireland & Thomson, 82, Princess Street, a smaller table on which many pretty Orchids were staged. Mr. G. Sinclair, Prestonkirk, had an interesting stand of Daffodils in great variety. Huge specimens of *Rhododendrons* from Messrs. R. B. Laird & Sons surrounded the band stand in the middle of the market, and formed an important feature of the Exhibition.

WATERTIGHT ASHPITS.

I REGRET to say I have only seen the last letter of Mr. Bardney on the subject of watertight ashpits, therefore my remarks on it may have been already anticipated in the previous correspondence. I understand Mr. Riddell to advocate the use of water in ashpits to generate steam; if he does he is the best of allies for all boiler manufacturers, for were his idea generally adopted the horticultural public would require about double the number of new boilers now bought yearly. My experience is that far more boilers rust out than fairly wear out, and if water be

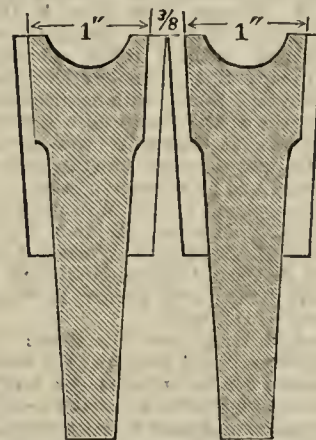


Fig. 53.—Hollowed Fire Bars.

kept standing under a boiler this cause of failure must be very largely increased. I believe that the heating power might be very slightly increased by the steam rising from the water that would be far more than counterbalanced by the damage to the boiler and brickwork. A head gardener has something else to do than personally superintend the stoking every day, and therefore the working of boilers ought to be made as simple as possible. Now, if this arrangement were adopted all the water ought to be removed when the boiler is not at work, or it will quickly be absorbed by the brick-setting and make the whole outer part of the boiler damp. To drive out this damp will consume more fuel than was previously saved by the water, irrespective of the damage to the boiler. Can any gardener insure that his stoker will always remove this water? From what I see of greenhouse boilers I think not. Let a gardener keep his boiler constantly well cleaned out—he will save far more fuel than by having water in the ashpit, and will greatly increase the "life" of his boiler.

I should like to point out to gardeners one very serious cause of waste of fuel. I have found it the practice at many—I had nearly said the majority of gardens—to leave the firing door wide open the greater part of the day in all but severe weather. They tell me this is to prevent the pipes getting too hot, and I have no doubt it thoroughly answers that purpose. Do they ever think of the enormous stream of cold air they are allowing to pass over the fire and under the boiler? Put a candle in a boiler where there is no fire but the damper open, and it will often be blown out by the draught. This draught is far more rapid when a fire is in the boiler. Think, then, what chance the heated air has of touching the boiler. Never let a stoker have his fire door open

under any pretence; if he has too much heat he should shut the ashpit door and damper until only just enough air passes to keep the fire alight. If they do not fit well enough to control the draught—they often do not—then have them made to. I believe gardeners as a class study their employers' interests more than most *employés*, and if they once realised how much fuel is wasted by an open fire door they would discharge the first stoker they caught doing it. Mr. Barney's remarks about narrow bars are correct; narrow bars are far the best when they are carefully used, but unfortunately those who stoke greenhouse boilers are not usually trained men like those who stoke steam boilers. I enclose section of a bar (fig. 53) we have used for some years and found to answer. It combines a narrow surface for the fire to rest upon with considerable strength, and allows the air to circulate well under the fuel, so the bar is not burnt away so quickly.—HENRY J. PEARSON (*of Foster & Pearson*).

ROYAL HORTICULTURAL SOCIETY.

APRIL 12TH.

THE exhibits of plants and flowers in the conservatory were varied and interesting, but in point of numbers the Daffodils preponderated, and the Committee appointed to rectify their nomenclature and to register approved varieties was busy for a considerable time. Orchids, hardwooded plants, and Amaryllises constituted attractions, and one feature of particular interest were the blooms of Rose *Toe Puritan* from America, which excited much attention, as they had been cut for about twelve days. They had, however, been carefully packed, and consequently seemed little the worse for their journey. With regard to the groups of Daffodil flowers more taste is displayed in their arrangement than was the case at one time, but even now if more foliage was employed it would afford a relief, and those who have adopted this system stage groups that are much more endurable than those consisting of crowded vessels of bright yellow Daffodils, margined with the equally bright scarlet Anemones, alternating, perhaps, with the blue *Chionodoxa Lucilla*, all beautiful, but somewhat clashing without a foil of green.

FRUIT COMMITTEE.—Present—T. Francis Rivers, Esq., in the chair, and Messrs. J. Lee, J. Fitt, G. Norman, J. Woodbridge, G. T. Miles, Philip Crowley, J. Burnett, W. Warren, Wm. Paul, R. D. Blackmore, Harry J. Veitch, T. B. Haywood, and J. Willard. The duties of this Committee were exceedingly light, only two exhibits being submitted to them. Mr. D. Inglis, The Gardens, Howick Hall, Lesbury, Northumberland, sent some specimens of Cabbage *Howick Stone*, with compact firm conical hearts, and evidently a good early variety; the Committee thought it a very promising Cabbage, and it is to be tried at Chiswick (vote of thanks). Mr. A. Barker, The Gardens, Hindlip Hall, sent fruits of an Apple for name, but it was not recognised, and was thought to be a local variety.

FLORAL COMMITTEE.—Present: G. F. Wilson Esq., F.R.S., in the chair; the Rev. W. Wilks, Dr. M. T. Masters, Major A. F. Lendy, and Messrs. J. Douglas, Shirley Hibberd, H. Bennett, J. Walker, Amos Perry, W. H. Lowe, J. Fraser, A. Bradshaw, R. Dean, Charles Noble, H. Ballantine, C. Pilcher, J. Doherty, J. O'Brien, E. Hill, Harry Turner, B. Wynne, G. Paul, W. Goldring, James Hudson, and G. Duffield.

A group of hardwooded plants from the Royal Gardens, Kew, formed a very interesting contribution, and comprised a number of useful plants, some very rarely seen except in botanic gardens, but worthy of more attention. The most noteworthy were the following:—*Cyrtis filipes* from the Canary Islands, with small white flowers scattered along slender gracefully drooping branches; several *Boronias*, including the charmingly fragrant *B. megastigma*, the pale pink *B. terandra*, and *B. polygalifolia*, with rosy star-like flowers; the free-growing and profusely flowering *Tetrath caericoides hirsuta*; *Agapetes buxifolia*, with bright scarlet tubular flowers; a very showy Ericaceous plant, figured in this Journal page 389, May 17th, 1883; *Pentapterygium rugosum*, with wax-like flowers, a reddish calyx, and strongly ribbed corollas irregularly barred transversely with brown on a semi-transparent surface; *Epacris microphylla*, with dense clusters of small white flowers; *Darwinia tulipifera*; *Eriosemon cuspdatum* and *scabrum*; the free bright yellow *Acacia linearis*; *Agathosma rugosa*, with purplish flowers in close heads; *Vaccinium myrsinites*; *Chorozemas varium* and *elegans*; *Grevillea pulchella*; and *Darwinia fuchsoides*. Several *Primulas* were also shown, including the new species, *P. Reidi*, which has small bell-like flowers; the yellow *P. Obisti*; and *P. marginata*. Flowers of a red variety of *Rhododendron argenteum* were shown; also of the peculiar *Kennedya nigricans*, which has the keel and wings black, the standard recurved, greenish yellow in the centre bordered with black. The exhibits from Kew were much appreciated, and similar collections would be welcome more frequently.

Messrs. J. Veitch & Sons, Chelsea, had a small group of choice plants, including several that were certificated, and are described at the end of this report. Plants of *Pieris* (*Andromeda*) *japonica* were flowering freely, *Azalea obtusa* with naturally formed bright red flowers, and *A. obtusa alba*, pure white, were shown in good condition, and awarded votes of thanks. Amaryllises *Her Majesty*, *Helvetia*, and *Illustrious* were other good varieties, besides those honoured with certificates. Mr. B. S. Williams, Upper Holloway, sent a collection of new rare or choice plants; a large specimen of *Rhododendron Veitchianum*, having numerous fine pure white fragrant flowers. Several good *Sarracenias* were shown, such as *Courti*, with bright red flowers; *Maddisoni*, dark red; *Drummondii alba*, very bright red; and *Crispata*, large, also red. *Ochna multiflora*, a curious plant illustrated in this Journal some time since, the green and black ovaries are placed on a scarlet receptacle, the persistent calyx being of a similar colour. *Boronia megastigma*, very healthy and profusely flowered; *Pandanus elegantissimus*, a graceful, narrow, green-leaved plant, useful for decorative purposes; *Vanda cristata*, a distinct Orchid, with greenish flowers, veined with maroon in the lip; *Imantophyllum aurantiacum*, a bold variety; the beautiful *Phalænopsis Stuartiana nobilis* (vote of thanks), and the blue flowered *Tillandsia Lindenii*. Messrs. J. Laing & Co., Forest Hill, contributed a few

choice Orchids, comprising *Dendrobium Ainsworthii* with over a dozen flowering growths, bearing sixteen to twenty-four large flowers each (cultural commendation), and *Cattleya Lawrenceana*, of unusually rich colour (vote of thanks). Mr. H. B. May, Upper Edmonton, was awarded a bronze Banksian medal for a group of Ferns tastefully arranged, and including some useful *Pterises*, *Adiantums*, *Davallias*, and *Lygodiums*. Messrs. Page and Son, Teddington, showed some *Odontoglossums*. Messrs. W. Paul and Son, had blooms of *Rose The Puritan*, described elsewhere, and *Rose Mrs. John Laing*, of beautiful form and soft rosy pink in colour (vote of thanks) and Messrs. Paul & Son, Cheshunt, showed a bloom of *Tea Rose the Bride*, white with a faint lemon tinge.

G. F. Wilson, Esq., F.R.S., Weybridge, exhibited flowers of dark coloured hybrid *Hellebores* and seedlings of *Primula denticulata* with large trusses of flowers of deep colour, and large panicle of flowers of *Andromeda floribunda*. The *Hellebores* had received some protection in severe weather, but the *Primulas* were from the open border. F. A. Philbrick, Esq., Q.C., Oldfield, Bickley, showed flowers of *Cymbidium eburneum Philbrickianum*, pure white, and of moderate size. F. Wigan, Esq., Clare Lawn, East Sheen, sent a plant of *Dendrobium Fendleyanum*, with eight well-flowered growths. Mr. F. Ross, Pendell Court Gardens, Bletchingley, exhibited a varied collection of interesting flowers, comprising *Fuchsia arborescens*, with small purplish flowers in dense heads and large leaves; *Kennedya* (*Hardenbergia*) *monophylla*, with violet-purple pea-shaped flowers, an old favourite, but one of the neglected plants now; *Salvias boliviensis*, *rutilans*, *elegans*, and *gesneriflora*, all useful, especially the last named; *Angraecum sesquipedale*, very large flowers; *Eurybia argophylla*, the Musk Wood, *Dendrobium fimbriatum oculatum superbum*, a handsome variety, flowers large and richly coloured; *Streptocarpus polyantha*, a small, purple flowered, free plant; *Myriocarpa stipitata*, a curious Urticaceous plant, with large leaves and long pendulous filiform inflorescence; *Vanda tricolor varietes*, *Paulownia imperialis*, from under glass, with a number of large purple tubular flowers and brownish calyxes; *Eranthemum eboracense*, pure white flowers; and the strange *Xylophylla speciosa*, with lanceolate phylloles, bearing small flowers on the margin. Mr. J. Douglas, gardener to J. Whitbourn, Esq., Great Gearys, Ilford, Essex, sent several of his seedling *Auriculas*, two of which were certificated; the others were *Sunshine yellow* self, *Innocence*, curious manve self; *Montrose*, grey edge, purple body colour; *Snowdowns Knight*, and *Lady of the Lake*, white edge, all meritorious varieties. Mr. R. Dean, Ealing, sent a plant of *Primula longibarda*, a dwarf form, with purplish flowers and a white centre. J. T. Gabriel, Esq., 6, Palace Road, Streatham Hill (gardener, Mr. E. Ranson), exhibited varieties of *Cattleya Trianae*, and *Odontoglossum Andersonianum* (vote of thanks).

Daffodils and hardy flowers were strongly represented as already stated, the chief collections being those from Messrs. Barr & Son, Covent Garden, Mr. T. S. Ware, Tottenham, and Messrs. Collins Bros. & Gabriel, Waterloo Bridge Road, to each of whom a silver Banksian medal was awarded. A great number of varieties in all the sections were included in these collections similar to those we have noted on previous occasions. Messrs. H. Lane & Son, Berkhamstead, had a group of *Azalea mollis* varieties in diverse tints of yellow, orange, and red (silver Banksian medal).

CERTIFICATED PLANTS.

Cattleya Trianae Schrödera (Baron Schröder, F. Wigan, Esq., Clare Lawn, East Sheen, and Baron Ferdinand de Rothschild, Waddesdon).—A few months since this handsome *Cattleya* was introduced to the notice of cultivators, and it has amply fulfilled the expectations then formed respecting it. Three exhibitors showed specimens of the variety and a certificate was awarded to each, there being but little difference between them, though the Waddesdon flowers had rather larger flowers and a deeper coloured golden blotch in the lip, while Baron Schröder's flowers were remarkable for their beautiful shape and soft colour. In all cases the sepals and petals were broad, the lip open, a soft rosy blush like some of the *Warszewiczii* group, with a bold rich golden centre. It appears to be a good grower and very free.

Odontoglossum crispum Mr. W. Thompson's Variety (W. Thompson, Esq., Walton, Stone, Staffs, gardener Mr. Stevens).—A superb variety, one of the largest heavily spotted types we have seen. The flowers were nearly 5 inches in diameter, the petals being about 1½ inch across and deeply fringed on the margin. Sepals and petals and lip were white with numerous large reddish brown spots running in some instances into irregular bars across the sepals and petals. The raceme had nine of these grand flowers and showed the character of the variety to the best advantage.

Odontoglossum Pescatorei virginale (Baron Schröder).—A pretty variety with large well-formed flowers, pure white, except a yellow crest at the base of the lip.

Cypripedium leucorhodum (J. Veitch & Sons).—A hybrid between *C. Roezli* and *C. Schlumi albidum*, raised in the Chelsea Nursery. The dorsal sepal tinged with pale crimson, the petals having a narrow median white line bordered with rose. The lip is large, of a light yellowish tint in front and crimson at the sides.

Rose the Puritan (W. Paul & Son, Waltham Cross).—A "Hybrid Perpetual" Rose raised by Mr. H. Bennett, of Shepperton, some time ago, from seed obtained from Mabel Morrison crossed with the old *Devoniensis*. It was sold to an American firm, and the variety has obtained considerable reputation in the United States. The blooms are white, of good substance and form, the petals slightly recurving at the margin; it is fragrant, and is described as a free growing and flowering variety, a statement borne out by small plants shown from Waltham Cross. Two dozen cut blooms were staged, all of which had been received from America in the "Etruria," which left New York on the 2nd inst., and arrived in Liverpool on the 11th inst., the bloom being conveyed thence to London by rail. Half the number of blooms were conveyed upright in tubs of water, and the others were firmly packed in damp cotton-wool in tightly closed tin boxes, and these travelled better than the others, arriving in a remarkably fresh condition.

Amaryllis Nonpareil (J. Veitch & Sons).—A superb variety, with flowers of medium size but exquisite form. The colour, an intensely rich shade of scarlet, extending to the centre of the flower.

Amaryllis Edith Wynne (J. Veitch & Sons).—A beautiful and distinct variety obtained from *A. reticulata*, crossed with one of the scarlet forms.

The flowers are most symmetrical, the petals crimson in the centre, margined with white. One of the best of its type.

Cineraria Alexander Warwick (Gordon & Sons, Haymarket, Edinburgh).—Quite a novel departure amongst Cinerarias, and one that was much admired by the members of the Committee. The florets are of an extremely rich crimson hue, quilled at the base, where they are also lighter in colour, imparting a curious appearance to the blooms.

Adiantum cuneatum Gordon's Tasselled (Gordon & Sons).—One of the grandioeps type, and considered by some judges to be inferior to that when well grown. The tips of the fronds are much divided, their weight causing the fronds to droop gracefully.

Cineraria William Pratt (W. Pratt, Longleat Gardens, Warminster).—A double variety, with very large globular purple blooms. A good type of double Cineraria, the heads being borne well above the foliage.

Rose minutifolia alba (H. Bennett, Shepperton).—Described as a pedigree seedling from *Rosa polyantha*, very dwarf, about 6 inches, with very small leaves, and neat white double flowers. A pretty miniature of Rose.

Rose Golden Fairy (H. Bennett).—Another of the same type as the preceding, and a good companion for it, though slightly stronger in habit. The flowers are small, of a bronzy yellow hue, not unlike a diminutive William Allen Richardson.

Violet Victoria (J. Chambers, Isleworth).—A double dark blue form of good shape, and free in habit.

Cyclamen Queen of Crimson (J. Odell, Huddington).—Flowers well formed, with broad rounded petals, of an exceedingly rich crimson, one of the best coloured varieties.

Auricula Abbe Liest (J. Douglas, The Garbena, Great Gearies, Ilford).—A beautiful green-edge variety with symmetrical pips, edge, paste, and tube well proportioned and even, the tube of good colour and paste pure.

Auricula Sir William Hewitt (J. Douglas).—A self with large flowers, rich maroon body colour, paste dense and pure, but rather narrow.

Narcissus cyclamineus (Barr & Son, King Street, Covent Garden).—A most interesting and graceful Narciss with a long straight golden corona notched at the margin, the petals lighter and slightly greenish in colour, narrow, and strongly reflexing. It is somewhat suggestive in form of a Cyclamen, or the flowers individually have some resemblance to single flowers of the larger yellow Lachenalias such as *L. pendula aurea*. An illustration of this species is given on page 287, this issue, together with some particulars of its history.



THE HARDY FRUIT GARDEN.

STRAWBERRIES.—Many delay mulching their established beds of these until near flowering time, but, according to our experience, it had better be done much earlier. Too little moisture at the roots is the most frequent cause of a partial failure to mature good crops of fruit, and if a good mulching of rough strawy manure is applied at the present time the best portion will be washed in by April rains, while the covering will greatly check loss of moisture by evaporation. The rains will clean the straw and render the surface fit for the fruit to rest upon, or it may be faced with clean material just before the flowers open. Poverty at the roots also causes some failures. No matter how well the ground has been manured and otherwise prepared for this crop, it soon becomes exhausted of much of its fertility, the Strawberry being of gross feeding habit. Liquid manure may be given with advantage any time during the winter and spring months or up to the fruiting period, sewage water being especially beneficial. In too many instances there is no provision made for collecting any kind of liquid manure, and recourse must be had to artificial manure. A great number of these manures are now advertised, and it is our belief that any one of them will greatly assist the Strawberries. It should be applied soon at the rate recommended by the vendors, and lightly stirred into the surface with the aid of a flat hoe. The rains will do the rest. Where slugs are troublesome it is advisable to take some precautionary measures against these. The flat or Dutch hoe is their greatest enemy, and prior to mulching the rows of plants, should be freely or repeatedly employed around them. If wood ashes are plentiful these may also be hoed into the surface, or a good dusting of newly slaked lime be given in either case before the mulching is applied. Never use the spade among Strawberry plants, this destroying many valuable surface roots, and besides the most fruitful plants are always rooting in firm ground.

New Plantations.—It is not absolutely necessary to trench ground for Strawberries, but unless it is well manured and deeply dug they soon become exhausted and unprofitable. Nor do the plants so soon suffer by want of moisture if they have the benefit of a deep and congenial root-run. In many gardens there is no time to be spared for the laborious work of trenching, but Celery trenches are formed everywhere, and these are bound to improve the depth and fertility of the soil. Let the Strawberries follow the Celery, and this is really the best time of year for planting. It is true many prefer forming new beds early in the autumn, but unless strong well rooted plants are available and the work generally well done they do not make much progress. If there are no rooted runners left on the old beds, plenty can be bought at a cheap rate, and these being planted out firmly will, with very little further trouble beyond picking off the bloom as it forms and keeping the ground

clean, grow into fine plants capable of perfecting heavy crops the following year. We do not advise giving up the ground solely to the Strawberries, but if the latter are planted as they ought to be, in rows 30 inches apart, 2 feet dividing the plants in the row, the intervening spaces can be profitably cropped with either autumn or spring-sown Onions, Kidney Beans, Lettuces, or Spinach. Autumn-planted Strawberries, unless they made good progress and have stout crowns, ought not to be allowed to fruit this season. It is better by far to pinch out all the blooms and crop between them as just advised.

Selection of Varieties.—When well grown the old Keen's Seedling is yet one of the best for the early supplies. A batch of this sort may well be grown on an early border. Vicomtesse Hericart de Thury is very vigorous and hardy, and in many gardens is grown for affording early fruit. La Grosse Sucrée crops heavily, the fruits are fine and of fairly good quality. It is a second early variety, and is closely followed by the ever popular Sir Joseph Paxton. The latter is a robust, prolific sort, the fruit large, firm, and good in quality. President succeeds this, and altogether may be said to be one of the best varieties in cultivation. Anguste Nicaise promises to become equally as popular, and will be found a very profitable variety. Sir Charles Napier is not hardy enough for many gardens. Where it succeeds it crops heavily, the fruit are large and handsome and of a brisk or rather acid flavour. Dr. Hogg ought to be tried in every garden. It is of sturdy growth, crops well, the fruits are large and of the best quality. British Queen is very fickle, but where it can be grown it is preferred to any other variety. Oxonian and Loxford Hall Seedling are valuable late sorts, both possessing a good constitution and crop heavily. We prefer the last named in point of quality. A loose rich soil suits none of them, this tending to produce luxuriant foliage at the expense of the bloom. Therefore always plant on well levelled and trampled ground.

FRUIT FORCING.

VINES—Early Houses.—In the earliest house if hard forcing has been practised red spider may be expected. Upon its first appearance paint the return hot-water pipes with sulphur mixed with milk. Where the Grapes have commenced colouring give the border a thorough watering, mulching afterwards. This refers to the inside borders. The water or liquid manure should be applied early in the day, so that surplus moisture may pass off before closing time. Early Grapes do not always colour well, the defect arising from hard forcing, and is only avoidable by a constant supply of dry warm air and a moderately low night temperature. Where Grapes are fully ripe only afford sufficient heat to prevent the temperature falling below 60°. A moderate moisture should be maintained for the benefit of the foliage, it will not injure the Grapes provided free ventilation is afforded.

Succession Houses.—Attend to thinning the bunches and berries. Stop and remove laterals gradually, as a large reduction of foliage at one time results in a check, very often inducing shanking at a later period. See that the borders have plenty of water, and weakly Vines will be benefited by tepid liquid manure. Where Grapes are swelling the inside borders should have a thorough soaking of liquid manure or water, and it is a good plan to give the liquid rather thick and follow at once with tepid water. Supply it early in the day, mulching afterwards, and ventilating freely to allow any superfluous moisture to escape. A full crop of Grapes is a great strain on the energies of the Vines, and though perfection in colour is not always attainable with a full crop, much may be done by a liberal and constant circulation of warm rather dry air, combined with a moderately low night temperature. Vines swelling their fruit should have a moist atmosphere, damping the house two or three times a day, particularly at closing time, and if a little guano be added to the water it will improve the Vines and act as a check to red spider; 1 oz. guano to a gallon of water is ample, at which strength it may be used for filling the evaporation troughs. Syringing the foliage, except for special reasons, after the Grapes are set must not be practised. Admit air early, maintain through the day a good temperature (80° to 85°) from sun heat, and close early so as to rise to 90° or more, and admit a little air at the top of the house before nightfall, which will prevent the deposition of moisture on the berries through the night, and is a safeguard against scorching.

Late Houses.—The Vines will now be making rapid progress. Disbud and tie out as they require it. Close the houses early in the afternoon with sun heat, and maintain plenty of atmospheric moisture by frequently damping the house, syringing the Vines at closing time, but not after the bunches show. Examine late Grapes hanging in the fruit room at least twice weekly for decayed berries, and the bottles must be duly replenished with water.

Young Vines planted last spring will now be breaking naturally, and when the buds have grown about half an inch a little fire heat will prove beneficial, especially on cold days. Remove all buds except one at each break, retaining the strongest, and crop lightly, but supernumeraries may be heavily fruited. Leave the shoots on the permanent Vines about 18 inches apart on both sides of the cane.

Planting Vines.—This is the best time for planting young canes. The borders, we presume, have been made some time, if not they may yet be formed. We prefer the borders partly within and partly outside, planting the Vines inside where practicable. Except for very early forcing we do not advocate confining the roots to inside borders. The border should be concreted at the bottom, unless it has a substratum of gravel or other porous substance. Place on the rubble 1 foot thick on the concrete, and proper drains and outlets must be provided. Three feet depth of soil is ample. Turf 3 inches thick taken off loam, light

rather than heavy, broken up tolerably small, and mixed with a tenth of old mortar rubbish, a twentieth of half-inch bones, and chareol in the same proportion as the lime rubbish, form a suitable compost, but well drained and fertile garden soil will grow serviceable Grapes. The Vines, it is presumed, were cut back in early winter, and have been kept in a cool house, the eyes now having grown 2 or 3 inches long. Turn them out of the pots, remove all the soil, carefully preserving the fibres. Spread the roots out straight and flat, the soil of the border being brought to the required height, covering the roots to a depth of 3 to 4 inches, working the soil well amongst them with the hand, and giving a good supply of water at a temperature 90°, mulching with a little short litter. If the canes have not been shortened do not shorten them now, but remove the buds from the upper portion down to where fresh growth is desired to issue, and shorten the canes at the winter pruning. Six feet width of border will be sufficient to commence with, confining the roots to the inside border until that is fully occupied with roots, when they may be admitted to a prepared width of outside border. Sprinkle the vines and house twice a day, but avoid forcing. A steady temperature is necessary, so as to afford time for the formation of new roots afterwards, and when they have started freely every encouragement to growth should be given. Until the Vines recover the removal to a temperature of 65° by day, advancing 10° to 15° from sun heat, and 55° at night, will be sufficient.

PEACHES AND NECTARINES.—Earliest House.—In the case of early varieties like Alexander, Waterloo, and Early Beatrice, the fruits will be swelling rapidly, and will need to have the leaves drawn aside and the fruit raised by means of thin laths placed across and secured to the trellis so that the apex will be exposed directly to the light. Syringing must cease directly the fruits commence to change for ripening. Continue, however, to syringe twice a day until the fruit begins to ripen, which with such varieties as Hale's Early and Royal George will not be for some time yet, and if there is the least trace of red spider apply an insecticide, it being important that the foliage be thoroughly clean by the time syringing ceases, as it must when the fruit commences ripening. Afford thorough supplies of water as required to inside borders, and give liquid manure to weak trees swelling a heavy crop. Keep the shoots well attended to in tying, thinning where required so as to give the fruit all the sun and air possible for the colouring process.

Trees Started Early in the Year.—The fruit will soon be stoning, and will require care to prevent sudden check by cold air in the day and too high temperature at night—60° to 65° at night, 5° less on cold nights, and 70° to 75° by day with sun are sufficient. Trees started in February. The fruit is all set and swelling freely. Allow a night temperature of 55° to 60°, ventilating above 65°, allowing an advance from sun heat to 70° or 75°, but with full ventilation.

Disbudding.—This should be attended to early, but not too early, as when it is practised before the fruit commences swelling or setting there is danger of the shoots being rendered gross, which is fatal to future crops. Therefore, as soon as the shoots can be displaced with the finger begin, and continue day by day until only the shoots required for future crops or the extension of the trees are retained—viz., one from the base of the shoots now fruiting and another above the fruit, which last should be pinched at a few joints of growth. In the case of trees not fully grown it will be necessary to leave shoots about 15 inches apart, calculating from the base on last year's growth to form the bearing shoots of next year, the terminals being trained in their full length as space permits. Closer training is often practised, resulting in weak overcrowded growths, not nearly so satisfactory as growths fully exposed to light and air.

Thinning the Fruits.—In all cases this should be attended to when fairly set and commencing swelling, removing the smallest first and those on the under side of the trellis, beginning with the weakest parts of the trees, thinning proportionately more there than on stronger wood, which from carrying more fruits will tend to the equalisation of the vigour of the trees. Perform thinning gradually, and only leave a few to meet casualties after the fruit attains the size of Walnuts. One fruit to every square foot of trellis covered by the trees is a fair crop. Nectarines may be left a little closer.

Tying-in the young shoots should also commence early, which is of the utmost importance where symmetrical training is considered, and in securing the growth to the trellis space must be left in the ties for the swelling of the shoots. Avoid after this very close tying-in of the growths until the final one before the fruit commences ripening.

Syringing must be practised twice daily on all trees not in flower or with the fruit ripening, so as to keep red spider in check, which must not on any account be allowed to retain a hold, or it will materially affect the present and the succeeding crop. The afternoon's syringing should be done at closing time, so as to have the foliage nearly dry before night. In very dull and wet weather syringing should not be practised in the afternoon, particularly in the case of vigorous trees.

Feeding.—Beyond giving water whenever necessary to insure a thorough moist condition of the borders, weakly trees swelling their fruit may be assisted with weak manure, mulching the border with short partially decayed manure, which will keep the roots at the surface, but will be of little use unless kept moist.

Late Houses.—The trees are in full bloom or fast approaching that condition, and as the flowers are very abundant they should be well thinned, particularly on the under side of the shoots. Failing bees (the best fertilisers) dust every blossom when the pollen is ripe with a camel-hair brush, feather, or some other light soft substance, selecting the early part of fine days for the operation. Where there are means of

affording heat the temperature should be maintained at 50° to 55° by day and 40° to 45° at night, in all instances accompanied by slight ventilation at the top of the house, which should be increased when the temperature reaches 50°. In unheated houses commence ventilating at the same temperature, and close at 65°.

FLOWER GARDEN AND PLEASURE GROUND.

Hardy Ferns.—Groups of these, whether near to the dwelling house, in the flower garden, or about the pleasure grounds, are very ornamental during the summer, and besides are very useful for cutting from. Many of the rarer smaller varieties succeed best when planted among rock-work or a tastefully arranged group of tree stumps and roots and stones, but the taller vigorous sorts grow equally as well in ordinary garden soil. In the first instance a little leaf soil may be added to the common soil, this encouraging the roots to take more readily to it, but later on as they spread a strong loamy soil greatly improves the size and appearance of the plants. This is especially the case with the Athyriums, Lastreas, Osmunda regalis, Polystichums, and Scelopendriums, while the Blechnums, Cystopterises, and Polypodiums do better when established among stones and roots. Now is the time to transplant and divide all of them, and with a very little trouble and expense either in the shape of collecting or purchasing the requisite number of plants, many an ugly spot might be quickly transformed into a charming feature.

Roses.—Full and valuable instructions as to pruning and other requisite cultural details have recently appeared in these pages, and it only remains for us to add that all pruning should now be completed. The frosts will have anticipated the pruning knife in many instances, innumerable standards being killed, while the dwarfs were injured down to the snow line. If it leads to the planting of more dwarfs in preference to standards this destruction will not be without its compensation, for it is very certain that dwarf Roses are the best in every way. It is rather late to purchase fresh plants from the open ground, but for walls and other prominent positions they can be had in pots. In addition to being freely pruned back all climbing Roses in hot positions ought to receive a liberal mulch of good manure, and this being disposed just under the surface soil is not unsightly, and is more effective than when spread on the surface.

Climbers.—The majority of these require to be pruned and otherwise attended to every spring. The summer or earliest flowering Clematises to have all dead and weakly growth cut away and the remainder neatly laid in, as it is the well ripened growth formed last season that produced the flowers this year. Those of the same habit as Jackmanni flower on the strong young growth formed this year, and in order to prevent unsightly thickets of growth and to keep the lower part of the walls, pillars, or archways to which they are fastened well furnished, it is advisable to freely cut back all the young growth formed last season to within three or four joints of their starting point. Magnolias must be properly secured to the walls, and only straggling shoots removed. Wistaria sinensis must have all long laterals spurred back to near the main stems, and leading growths laid in where needed. Passion Flowers, what few have survived the winter, have all lateral growths cut back to near the principal branches, and the latter ought to be securely fastened to the walls, as they have to support a great weight of flowering growths that will form during the summer. Jasminum nudiflorum being now out of bloom may be freely pruned back, the bloom being formed on the young shoots that mature during the summer. The common Jessamine to be cut closely back, the flowers being produced on the young shoots resulting. The Loniceras also are improved by annual thinning out and shortening back. Crataegus pyracantha and Pyrus japonica also to be kept rather closely pruned, or otherwise a thicket of growth and not much bloom results. Forsythia viridissima now at its best to be cut back after flowering, and the Chimonanthus fragrans ought to be freely cut in, plenty of spray and not much rank growth being required in this case. Virginian Creepers should have all loose growth cut away, no other attention being then needed, but the coarser sorts if over-weighted with much loose growth are apt to break away from their natural fastenings. It is the same with the Ivies, these requiring more attention than is usually accorded them. Besides having all growth approaching the eaves of a house removed, they should have all lateral growth also either pulled out of their sockets or cut away. Thus treated they are neater in appearance, do not break away from the walls in a wholesale manner and there is no harbour for birds and vermin.

THE BEE-KEEPER.

PRACTICAL BEE-KEEPING.—No. 8.

In the old times it was not nearly so necessary to pay attention to feeding as at the present day, when nearly every stock in the apiary requires an artificial supply of food to take the place of the honey which the intelligent bee-master appropriates to his own use. We will first point out some of the occasions when feeding will almost certainly be necessary, and then describe the kind of feeders which appear to be most generally useful for all

purposes. Immediately upon the removal of the last super at the close of the honey season every stock must be examined and an estimate formed of the amount of food contained in the brood combs. If less than 15 lbs. is found in August an immediate supply must be given, but if there is a quantity sufficient to tide over until the middle of September it will be quite as useful to give the syrup required for use in the winter at that time instead of in the preceding month. The well-being—the very life in fact—of every stock depends upon a copious supply of honey or syrup, with which life may be sustained until the following year affords a new supply, being given in autumn. Every stock in the middle of September must contain at least 20 lbs. of honey or syrup stored in sealed cells. If the cells are not sealed disease may probably attack the stock. If the supply is given later than the month of September some of the brood which will be raised under the excitement of food coming in in quantity may be chilled and the stock weakened when above all other times it should be strong.

Again, in April there should always be at least 10 lbs. of honey in every stock, so that the bees may be rendered to some extent independent of the new supply. If there are no sources of honey in April or the weather is bad a supply of syrup must be given to make up the deficiency. Throughout the summer, indeed, the brood combs should always contain sufficient honey to last the stock for at least ten days even if the supplies from the fields should fall very far short of what may be expected. To keep stocks supplied with food sufficient for a day or two only, to attempt to raise stocks filled with brood and bees without a supply of honey to keep them in health and full vigour when a season of failing honey supply comes on unexpectedly, perhaps in the very middle of the summer, is an insane management. The difficulties experienced in such a case when, say, a hive has sixty sections tiered upon it, the anxieties to which such a state of things give rise, can only be conceived by those who have experienced them; for in the early season even sixty sections on a hive with comb drawn out may contain but very little honey, and this honey in bad weather the bees are unable to utilise in the brood nest because the cold prevents their fetching it from the upper combs. To remove these tiers of sections at every break in the honey flow is both impolitic and impossible, and when there is a sufficient supply below unnecessary. A stock to be in good condition for supering must be filled with bees and brood and honey. Ten pounds of honey is perhaps enough, but 12 or even 15 lbs. is not too much for even the brood frames to contain in the early part of the supering season. The bees then use this honey stored in the brood combs, and it suffices to maintain them when outside supplies fail. In a lengthened period of scarcity an extra supply must be given and continued until a natural supply can again be obtained. The question of stimulative feeding in spring and autumn is so important that it must be reserved for special discussion. The chief points to be remembered in connection with feeding bees are—

1. Too much is better than too little.
2. At no time of the year must bees experience want.
3. At the time of removing the last super special attention is required.
4. All swarms should be fed for some days after hiving however favourable the weather may be.
5. Superseded stocks should always contain honey in the brood frames.
6. To last from September to April 30 lbs. of sealed store is sufficient.

The advantage derived from feeding swarms is so great that it can hardly be over-estimated, but we must return to this point on a future occasion. In autumn, when food has to be supplied in quantity sufficient to last over some eight months, it is necessary to give a large supply of syrup, unless the combs already contain a larger amount than may usually be expected when supering arrangements have been successfully carried out. Such a supply can be given by an ordinary bottle feeder, but it is easier and much more practical to give the syrup in a feeder of which the following is an accurate description:—

The feeder itself consists of a round tin 6 inches in depth and 10 inches in diameter. In the bottom there should be a hole 2 inches in diameter. To the sides of this hole should be attached a tube of perforated zinc of double thickness, arranged so that liquid will not pass through it. This tube must be 5 inches in height only. To the outside of the tin a funnel 2 inches by 3 inches should be attached, having connection with the bottom of the inside of the feeder by means of a slit 2 inches wide and $\frac{1}{2}$ inch in height. This slit must be covered with a small piece of perforated zinc to prevent the ingress of the bees into the funnel. The top of the funnel must be covered also with a moveable lid of tin or other material. A float quarter of an inch or less in thickness and $9\frac{1}{2}$ inches in diameter, with a hole in the centre $2\frac{1}{2}$ inches in diameter, must also be made. This float must be pierced with holes a quarter of an inch in diameter about half an inch distant from one another. The lid of the feeder may consist of tin or wood or glass, but if glass is used it must be well covered with some warm material. With a feeder such as we have described a glass lid is wholly unnecessary and more expensive than a plain and equally useful covering of tin or wood. When the feeder is empty the float lies at the bottom of the tin, but as the syrup is poured in at the funnel the float rises. As the syrup rises in the feeder it will also rise correspondingly in the funnel, so that it is unnecessary to lift the lid to see how much syrup has been taken, and therefore the feeding can be accomplished with ease and absolute safety. The sole object of the tube which rises in the centre of the feeder to within an inch of the top being made of a double thickness of perforated zinc is to enable the bees to have a firm foothold, the space between the top of the tube and the lid of the feeder being of course left for the purpose of the ingress and egress of the bees to and from the feeder and the hive. Such is the most useful feeder it has ever been my good fortune to use; a better I never expect to see and do not desire. If stimulative feeding is practised in spring, the wisdom of doing so will hereafter be discussed. A small bottle, holding about 2 ozs. of syrup, will be required, and the top may be covered with "cheese cloth," the bottle being inserted on a piece of perforated zinc placed on the top of the hive, and the whole kept warm and snug by wrapping with warm material. Other feeders there are for this purpose, but they are no more useful and a great deal more expensive than the now despised "bottle." For use in summer, when the outside supplies fail, a bottle holding about 2 lbs. of syrup may, with advantage, be used, but in all other respects the same plan must be adopted as with the smaller bottle feeder.

How must the syrup be made? This is of course a most natural question, and admits of a very short reply. For ordinary use in the apiary a syrup made of a cheaper sugar may be used, but for the purpose of winter food the best loaf sugar is, although rather more expensive, the cheapest in the end. In all other respects

the syrup for use in spring, summer, or autumn may be made the same. My recipe, and it is a good one to judge by the results following upon its use, is:—

An equal weight of sugar and water boiled two minutes, a wineglassful of vinegar being added to every 6 lbs. of syrup when the liquid begins to boil. Such a syrup is equal, so far as my experience goes, to the best honey for all bee purposes. Stocks which contain not 1 oz. of flower honey winter as well, if not better, than those containing honey gathered in the fields. To add salicylic acid and borax and other ingredients is not in the least necessary, unless there is a fear that disease is present or may be expected to break out. Care must be taken when making syrup not to allow it to burn, and care is also necessary to see that it does not boil more than the time specified. The longer it boils the more it wastes, and the less fit it becomes to be given to bees.

Those who desire to learn new methods of feeding, those who have the money and desire to experiment with comparatively untried novelties, must go elsewhere for their information. These papers are specially devoted to the study of "practical bee-keeping," and in them the attempt is being made to give instructions as to the purchase of hives and general management which shall be intelligible to all, and to show that a small capital only is required to commence bee-keeping; that from this outlay a good return may be expected with little expenditure of labour; and that an intelligent bee-master will, with his simple yet practical appliances, outstrip the extravagant bee-keeper supplied with all that the ingenuity of man can devise to assist him in his work.—FELIX.

POISONOUS HONEY.

In your impression of 7th April, "A.L.B.K." discusses the question of poisonous honey. I am afraid it is too true that certain kinds of trees, shrubs, &c., produce poisonous honey, such as Rhododendrons, Ailantus, Azalea pontica, Kalmia latifolia, Mountain Laurel, &c. Judging from the symptoms described by Xenophon, and by writers at the present time, the diagnosis seems to point to poisoning by prussic acid.

Dr. Graunier relates his own experience:—"Some time after eating, a queerish sensation of tingling all over, indistinct vision, caused by a dilatation of the pupils, with an empty dizzy feeling about the head, and a horrible nausea that would not relieve itself by vomiting." And he narrates cases of some soldiers, who, after eating some of the same honey, which was gathered from the Mountain Laurel, "that they appeared to be dead drunk, with a total loss of power over the voluntary muscles."

Prussic acid is contained in the kernels of the Peach, Nectarine, Cherry, &c., in the pips of Apples and Pears, and in the leaves of the Cherry Laurel, and cases of alarming illness have occurred from eating Bitter Almonds too freely; while the essential oil obtained by distilling the pulp of these Almonds with water is a powerful poison. The distilled water obtained from the leaves of the Cherry Laurel has been known to cause death half an hour after swallowing four tablespoonfuls.

In cases of poisoning by honey, an emetic of mustard and warm water (a dessert-spoonful of each) should be given at once, and a towel soaked in cold water applied to the head and neck, constantly repeated, and half a teaspoonful of sal volatile in a wineglass of water to be taken, and repeated if necessary.

It is a very difficult question to answer why the bees should be able to gather this poisonous honey without any harm to themselves. It is most probable that the small amount of prussic acid contained in the amount of honey in the honey sac of the bee acts only medicinally, and not as a poison, just as the dilute prussic acid is extensively used in the treatment of disease, the dose varying from one-twenty-fifth to one-sixth of a drop of the strong acid.

Again, it is a well-known fact that the lower the vitality of an animal the less, as a rule, is it affected by poisons. This is especially the case with prussic acid, as the pulse is really imperceptible a few seconds after a poisonous dose has been taken. The poison, I believe, is in the nectar of the flowers, not in the pollen, but this can easily be determined, as the tests are very delicate, and will show the presence of a very small quantity of prussic acid.

I will carry out some experiments on this subject, and will let your readers know the results, though I cannot promise to experiment on myself with honey and prussic acid, for the latter of which I have the greatest possible respect.

If "A.L.B.K.," or any of your readers could forward me some of the bees, presumably poisoned, it will be, as the old writers had it, of much avail.—GEORGE WALKER, Wimbledon.



All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

LATE INQUIRIES.—It is necessary to again remind correspondents that letters arriving on WEDNESDAY MORNING cannot be answered in the "next issue," which is then far advanced for press.

Feathered Cyclamen (C. H. G. C.).—By all means preserve it, for though it cannot be considered beautiful in this form it might prove the originator of a distinct type if you could perpetuate the character from seed.

New Plants (B. D. K.).—The list does not include all certificated plants, but deals specially with those that have been figured or described in botanical publications. The plant you mention has been repeatedly noted in this Journal.

Wasps (S. N.).—The wasp you have sent is a queer, as all wasps are at this season of the year, and they should be destroyed, as the possible progenitors of thousands. It does not follow that everyone escaping capture will be the originator of a nest, as several suc umb to adverse weather influences during some seasons, but it is none the less advisable to secure all that can be seized. Yours is not the first we have seen this year.

Plants for Shady Borders (L. T.).—Gladioli will not do well in the shade. If not actually overhung and the soil not made very dry by the roots, you could not have anything better than *Violas*. *Begonias* (tuberous) are also good. *Liliums* would not succeed well. If you wish for herbaceous plants employ the following: *Aconitum japonicum*, *Anemone apennina*, *A. nemorosa alba plena*, *A. nemorosa caerulea*, *Helleborus*, *Hepatica*, *Daffodils*, *Snowdrops*, *Winter Aconite*, *Primroses*, &c., are useful in spring. *Doronicum caucasicum*, *Hemerocallis flava*, *German Iri*, *Hypericum calycinum*, *Megasea cordifolia purpurea*, *Oxalis floriunda rosea*, *Papaver nudicaule*, *Paeonies*, *Polemonium Richardsoni*, *Ranunculus aconitifolius plenus*, *R. amplexicaulis*, *R. anemonoides*, *R. speciosus*, *R. acris fl. pl.*, *Spiraea Aruncus*, *S. filipendula plena*, *S. japonica*, *Symphytum officinale variegatum*, *Trillium grandiflorum*, *Trollius japonicus fl. pl.*, *T. asiaticus*, *T. napellifolius*, *Viola cucullata*, and *Vincas*. Those would be suitable for the east border.

Jumping Insects on Mushrooms (J. B.).—These evidently belong to the family of the Springtails, and this particular species seems to be the one bearing the name of *Achoretus purpurascens*; it is nearly related to the species found often in swarms about Cucumber beds. That some of these Springtails are rather injurious to seedlings under glass is admitted, but it is supposed that they indulge in a mixed diet, and also prey on the mites in whose company they are frequently observed, as in the present instance. We presume the larger, spider-like insect you describe is the mite first noticed, but in the later stage of its history—a stage which, according to the students of this group, is not reached by the majority in this genus *Rhizoglyphus*—as yet, however, we have not definitely ascertained the facts of their singular life. Some think that the one species is parasitic upon the other. There cannot be a doubt that both mites and Springtails travel from place to place, in manure not uncommonly. As to eradication, we think you will find, by experiment, that water can be applied sufficiently hot to destroy the insects without injuring the Mushrooms; if not, pour boiling water on 2 ozs. of hellebore powder, then add sufficient water for making a gallon of the solution, and with this sprinkle the beds and manure.

Strawberries (E. H. B.).—The question of the durability of Strawberries is, in our experience, very much a question of soil. We have grown them in a garden in which it was decidedly advantageous to plant a certain number of rows annually, and uproot a corresponding number after they had produced two good crops. The soil was light, in a dry district, and heavily mulched with manure, or the plants would have been comparatively weak and the crops poor. In another garden we could take three full crops from the plants, the soil of medium texture, and fertile. In a third garden of strong soil we gathered excellent crops for seven consecutive years, but thinned the crowns somewhat when cleaning the plants after gathering. We generally point up the soil and apply manure in the autumn, and as you appear to have done the same it will not be necessary to dig some in between the rows now; but if nothing were done to the plants in the autumn we should not hesitate to carefully fork good short manure between the rows very early in spring, and at the same time cover the surface with less decayed manure, that would wash quite clean before the crop approached the ripening process. But please to understand that digging ruthlessly with a spade in late spring with the plants in free growth is one thing,

pointing manure carefully in, just as signs of growth are visible, quite another matter. We have seen splendid crops follow this latter practice, and plants seriously injured by the former.

Vines Breaking Irregularly (*A Constant Reader*).—The vagaries of Vines is proverbial. They mostly start at the upper part first, but lifted Vines usually break from the bottom upward, so that there is nothing uncommon about them; and it is not only a characteristic of Vines, but all lifted trees. It depends on the amount of the root-reduction and the vigour or otherwise of the Vines. If the roots were in bad condition, and consequently only a few were retained in proportion to the head, then they will only be able to supply sap for the support of part of the Vine, and growths will proceed from the base upwards, according to the amount of sap available. That is one reason. There is another—viz., the upper portions of the Vines are not only youngest but strongest. They have larger pores or sap-vessels, and are not so soon filled as the lower, hence the buds on the lower half of the Vines have the sap needful for their development. There is a third reason—viz., the lower half of the Vines from being least vigorous have more concentrated sap, and this acted on by heat and moisture will cause the buds to develop more rapidly than on stronger and less ripened wood. To insure an even break we advise that air be admitted by the side ventilators only, which will keep a moist condition of the atmosphere at the upper part of the house, and so induce the sap to extend to the extremities, causing the buds to develop equally with the lower part, especially if the Vines are syringed three times a day. A light shade would also be advantageous in bright weather to lessen evaporation. Watering the outside border would only tend to aggravate the evil, as it would be moist enough and much colder than the air. The water used for syringing should be tepid, and any given the roots should also be warm, but outside borders are this year wet and cold enough. Even established Vines are breaking badly.

Vines Dying (*O. E.*).—We regret to inform you that the Vine roots sent for examination are seriously attacked with the phylloxera. They are not only covered with small tuberosities that indicate the presence of the pest, but clusters of eggs were clearly visible under the microscope, also insects in the form of a "small ovoid mass," described by M. Planchon, who observes:—"When the insect is about to lay its eggs (that is, in the adult female state), it forms a small ovoid mass, having its inferior surface flattened, its dorsal surface convex, being surrounded by a kind of fillet, which is very narrow when it touches the thoracic part of its body, which, formed by five rather indistinct rings, is hardly separated from its abdominal part of seven rings. Six rows of small blunt tubercles form a slight protuberance



Fig. 54.—Phylloxera vastatrix.

Female specimens and their eggs. a, Antennae; b, horns or suckers; c, egg plainly visible in the body of the insect; f, winged form of the insect. All magnified.

on the thoracic segments, and are found very faintly marked on the abdominal segments. The head is always concealed by the anterior protuberance of the buckler; the antennae are almost always inactive. The abdomen, often short and contracted, becomes elongated towards laying time, and there can be easily seen one, two, or sometimes three eggs, in a more or less mature state. The egg sometimes retains its yellow colour for one, two, or three days after it has been laid; more often, however, it changes to a dull grey hue. From five to eight days generally elapse before it is hatched. The duration of this period depends a good deal on the temperature. The quantity of eggs, and the rapidity with which they are produced, are probably determined by a variety of circumstances—the health of the insect, the quantity of nourishment it is able to obtain, the weather, and perhaps other causes. A female which had produced six eggs at 8 o'clock A.M. on the 20th of August had fifteen on the 21st at 4 P.M.—that is, she laid nine in thirty-two hours. Other females lay one, two, or three eggs in twenty-four hours. The maximum quantity is thirty in five days. The eggs are generally piled up near the mother without any apparent order, but she sometimes changes her position so as to scatter them all around her. They have a smooth surface, and adhere lightly to each other by means of a slimy matter which attaches to them. Hatching takes place through an irregular and often lateral rent in the egg, the empty and crumpled membrane being found among eggs in different stages of hatching." With Vines in such a bad state there is only one safe method of procedure, and that is to clear them out, also the border, and, after thoroughly cleaning the house, to plant new Vines in fresh soil. Possibly on reflection you may be able to find how and when the scourge was introduced.

Names of Fruits.—The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and surplus fruits beyond that number cannot be preserved. (*A Constant Reader, Pershore*).—The Apple is Lady Henniker.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (*J. K. C.*).—Dendrobium Farmeri aureo-flavum certainly, not D. fimbriatum. (*P. J. O. H.*)—Fuchsia refracta. (*E. H. B.*).—We consider your plant an ordinary variety of Dendrobium Pierardii.

Placing Section Racks upon a Hive (*A. B.*).—When admission is given the bees to supers from every comb there is a risk of a drought being caused through the brood nest, and should the weather be unfavourable the progress of the bees is greatly retarded, and larvae may be eaten. The queen is liable to ascend if the brood nest is anything too small, and the combs will be much darkened. The crown of the hive is best in all cases to be closed by slides, as in the Stewarton, or with slips of wood to drop between frames, and all hives should be constructed so as to admit of that being done, and the bees should be admitted to supers from the outside space, or not more than two. This method is not only better in every respect, and particularly for producing a more delicate sample of honeycomb, but it entirely obviates the use of excluder zinc, honey-boards, or ticking, all of which annoy and retard the bees in their labours more or less, and increases labour to them by the propolis required. Not having the knowledge of the sort of frame you use we cannot advise how you can accomplish what we advise, but you will find instructions in back numbers describing the cheap hive.

COVENT GARDEN MARKET.—APRIL 13TH.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.		
Apples 1/2 sieve	2	0	to	5	0	Melon each	0	0	to	0	0
„ Nova Scotia and						Oranges 100	6	0	to	0	0
Canada, per barrel	10	0		19	0	Peaches per doz.	0	0	to	0	0
Cherries 1/2 sieve	0	0		0	0	Pears dozen	1	0	to	0	0
Gobs 100 lb.	60	0		65	0	Pine Apples English .. lb.	1	6	to	2	0
Figs dozen	0	0		0	0	Plums 1/2 sieve	1	0	to	2	0
Grapes lb.	4	0		8	0	St. Michael Pines .. each	2	0	to	5	0
Lemons case	10	0		15	0	Strawberries per lb.	8	0	to	12	0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes dozen	1	0 to 0	0	Lettuce dozen	1 0 to 1 0
Asparagus bundle	8	0 13	0	Musbrooms punnet	0 6 1 6
Beans, Kidney .. per lb	2	0 2	6	Mustard and Cress punnet	0 2 0 6
Best, Red dozen	1	0 2	0	Onions bunch	0 3 0 0
Broccoli bundle	0	0 0	0	Parsley .. dozen bunches	2 0 3 0
Brussels Sprouts .. 1/2 sieve	2	0 2	6	Parasips dozen	1 0 2 0
Cabbage dozen	1	6 0	0	Potatoes cwt.	4 0 5 0
Capsicums 100	1	6 2	0	„ Kidney .. cwt.	4 0 0 0
Carrots bunch	0	4 0	0	Rhubarb bundle	0 2 0 0
Cauliflowers dozen	3	0 4	0	Salsafy bundle	1 0 1 6
Celery bundle	1	8 2	0	Scorzouera bundle	1 6 0 0
Coleworts doz. bunches	2	0 4	0	Seakale per basket	1 6 0 0
Cucumbers each	0	4 0	6	Shallots lb.	0 3 0 0
Endive dozen	1	0 2	0	Spinach bushel	3 0 4 6
Herbs bunch	0	2 0	0	Tomatoes lb.	1 0 2 0
Leeks bunch	0	3 0	4	Turnips bunch	0 4 0 6

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.	
Aralia Sieboldi .. dozen	9	0 to 13	0	Fuchsia dozen	9 0 to 12 0	
Arbor vitae (golden) dozen	6	0	9	0	Genista dozen	8 0 to 12 0
„ (common) dozen	6	0	12	0	Hyacinths .. per dozen	6 9 to 9 0
Azalea per dozen	24	0	35	0	Lilies Valley dozen	12 0 to 24 0
Begonias dozen	4	0	9	0	Marguerite Daisy .. dozen	6 0 to 12 0
Cineraria .. per dozen	6	0	10	0	Mignonne dozen	6 0 to 9 0
Cyclamen dozen	12	0	24	0	Myrtles dozen	6 0 to 12 0
Dracæna terminalis, dozen	30	0	60	0	Narciss (various).. dozen	12 0 to 15 6
„ viridis .. dozen	12	0	24	0	„ each 2	6 to 31 0
Erica, various .. dozen	18	0	42	0	Pelargoniums .. dozen	12 0 to 24 0
Euonymus, in var. dozen	6	0	18	0	„ scarlet .. dozen	6 0 to 9 0
Evergreenus, in var. dozen	6	0	24	0	Primula sissensis .. per doz.	4 0 to 6 0
Ferns, in variety .. dozen	4	0	18	0	Solanums per doz.	9 0 to 12 0
Ficus elastica .. each	1	6	7	0	Spiræa dozen	9 0 to 13 0
Foliage Plants, var. each	2	0	10	0	Tulips per doz. pots	6 0 to 9 0

CUT FLOWERS.

		s. d.	s. d.			s. d.	s. d.
Abutilons ..	12 bunches	2	0 to 4	0	Marguerites ..	12 bunches	2 0 to 6 0
Arum Lilies ..	12 blooms	4	0	6	Mignonne ..	12 bunches	4 0
Azalea	12 sprays	0	6	1	0	Narciss, Paper-white bunch	0 4 to 0 6
Bouvardias ..	per bunch	0	6	1	0	„ White English, bunch	0 0
Camellias ..	blooms	1	6	4	0	Pelargoniums, per 12 trusses	0 9
Carnations ..	12 blooms	1	0	3	0	„ scarlet, 12 trusses	0 6
„ ..	12 bunches	0	0	0	0	Primroses .. dozen bunches	0 6
Chrysanthemums	12 bches.	0	0	0	0	„ Parme Violets (French)	2 6
„ ..	12 blooms	0	0	0	0	Poinsettia .. 12 blooms	0 0
Cornflower ..	12 bunches	0	0	0	0	Primula (single) per bunch	0 4
Cyclamen ..	12 blooms	0	4	0	9	„ (double) per bunch	0 9
Daffodils, various, dz. buds		2	0	6	0	Roses .. 12 bunches	0 0
Epiphyllum ..	doz. blooms	0	6	0	0	„ (ladder), per dozen	1 0
Eucharis ..	per dozen	4	0	6	0	„ Tea dozen	2 0
Gardenias ..	12 blooms	1	6	3	0	„ red (French) .. dozen	1 6
Hyacinths, Roman, 12 sprays		0	0	0	0	Stocks, various 12 bunches	0 0
„ ..	13 sprays	0	0	0	0	Tropeolum .. 12 bunches	1 6
Lapageria, white, 12 blooms		0	0	0	0	Tuberose .. 12 blooms	2 0
Lilium longiflorum, 12 blms.		4	0	6	0	Tulips doz. blooms	0 6
Lilac (white), French, bunch		4	0	7	0	Violets 12 bunches	0 6
Lily of the Valley, 12 sprays		0	9	1	0	„ Czar, French, per bunch	1 0



THE ROOT CROP.

The sowing of spring corn is over once more; winter corn has had its spring dressing of manure and the roller

has been passed over it; foul land has been cleaned with facility; and we are now in the full swing of preparation for the root crop. There should be no uncertainty about any detail of this important part of spring farm work, for at Michaelmas the whole of the cropping for the ensuing twelve months was well considered, and the area of the land to be devoted to each crop was definitely arranged. It was then decided if any alteration or addition was advisable, but our decision then may be modified in some degree now, for the long hard winter and late spring have taxed our resources severely, and it may be that many a farmer may have good reason to try and enlarge his store of roots for another winter.

Mangolds were an abundant crop last year; the roots were large and of good quality, but we know several farms where the store of Mangold is almost exhausted, and the frequent inquiries at market for Mangolds which we have heard recently prove this to be the case very generally. Yet so abundant was the crop in the Fen districts that large quantities have been sold at the extraordinary low rate of 5s. a ton, or 10s. a ton less than the average price in ordinary seasons. Sown in the second or third week of the present month Mangolds may be regarded as a safe crop, provided due care is taken in the preparation of the soil. The best way of doing this is to ridge plough the land in autumn. This is done by first of all throwing it into ridges, which are immediately split by passing a double-breasted plough along through the middle of each ridge, throwing the soil right and left so as to form other ridges, and to stir up the whole of the surface, which is thus left fully exposed to the action of the weather throughout winter. By doing this we achieve two objects, which are the free admission of air, rain, and frost into the soil, and the making of furrows between the ridges to contain farmyard manure for the roots in spring. Nor would we have manure put in them before spring, no matter how great may be the temptation to cart out the manure in winter. We repeat here that to cart manure, to spread it in the furrows, and leave it exposed often for several weeks, is bad practice. There must be a serious loss of the very essence of the manure so exposed to the air, and the mass of humus which remains to be covered by the soil contains comparatively little nutriment. The quantity of farmyard manure to be used per acre is 14 tons; with this use a mixture of $\frac{3}{4}$ cwt. muriate of potash, $1\frac{1}{2}$ cwt. nitrate of soda, 2 cwt. steamed bone flour, 1 cwt. common salt, and 1 cwt. mineral superphosphate per acre. Procure the chemical manures separately and mix them at the farm three or four days before use, then apply the mixture by scattering it along the furrows upon the soil and farmyard manure, and immediately cover by drawing a double-breasted plough through the ridges. Sow the seed at once while the soil is moist at the rate of 7 lbs. to an acre.

Sowing on ridges gives such an additional depth of soil that any sort of Mangold may be sown. We have had excellent crops of Long Red upon poor thin soil under ridge culture, and we have now upwards of 100 tons of this sort which were grown in poor gravelly soil last season. But soil that is naturally poor undergoes a radical change when treated with chemical and farmyard manure in this way. Yellow Globe is the most popular variety among farmers in East Anglia, and under high culture it answers so admirably that they have ample reason to like it. Preference for particular sorts is, however, a matter of fancy rather than of practical utility, and so long as due attention is given to all other important points of culture, our chief care is to obtain really

good well-harvested seed, either home-saved or from a reliable source.

Speedy germination of the seed and quick growth is most important. If drought sets in after the sowing the soil may become so dry that much harm may follow, for if germination is induced, and there is a want of moisture in the soil to sustain the seedlings, they may perish outright. In a dry season this risk is avoided by the use of water barrels or carts with a clever arrangement behind the barrel, whereby a spray of water falls upon the top of each ridge as the water-cart is drawn along by a horse. If, however, the soil continues sufficiently moist to enable the plants to become well established in it and to grow freely, it is altogether best to avoid using a water cart. The roots soon reach the farmyard manure among which they spread, and the moisture which it contains goes far to ensure a strong quick growth. It is for this reason that we continue using a certain quantity of farmyard manure in preference to a larger quantity of chemical manure.

WORK ON THE HOME FARM.

Easter lambs have sold well at prices ranging from 40s. to 55s. apiece. Such prices are exceptional, and though the transaction is not on an extensive scale as regards the number of lambs sold, yet it is somewhat pleasant to effect even one good sale amid the prevalence of low prices generally for farm produce. The loss of two of the strongest lambs puzzled us at the moment, and we were some little time in ascertaining the cause. The ewes have had a liberal supply of Oats with chaffed hay and Barley straw while folded upon Swedes. The lambs have run forward, and have not only cleared off the tops, but have also eaten the greater part of many of the roots; they have also had Mackinder's lamb food in troughs outside the folds. Now a small proportion of the Swedes have become rotten, the strongest lambs have eaten heartily of the roots, and have, of course, had most of the lamb food. In point of fact they have gorged themselves with food to repletion, the rotten roots have induced scouring, while the rich full diet has forced them on so fast as to affect them in a very similar manner to that of calves and young stock under high feeding. The shepherd declared that inflammation was the cause of the loss, but such a conclusion was altogether too vague to satisfy us, and we believe we should not be far wrong in terming the ailment apoplexy. The outcome of our cogitations was an order to discontinue using the lamb food for a few days, to move the flock on to the Rye, and to give a moderate quantity of crushed Oats mixed with bran, care being taken to see that the strongest lambs did not get an undue share of it. The late spring affects the price of hoggets as well as of bullocks. Excellent hoggets were sold at our last market for 35s. apiece, and very few bullocks reached so high as £20 apiece. There is no "keep" upon pastures, cattle must still be kept in yards and hoggets in folds; this fact, combined with a pressure for money to pay the Lady-day rents, has forced much stock upon the markets, and has, consequently, tended to keep down prices. "After all there is nothing like pigs," said we, after watching the sale of some of our porkers for 50s. apiece at the last market. If only they can be kept free from disease, and be really well managed, nothing answers better, few things so well. We must, however, again and yet again insist upon the importance of cleanliness for pigs if we would avoid disease.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain
1887. April.		Barometer at 32s and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
Sunday	..... 3	31.124	41.7	41.0	N.W.	41.8	55.9	35.3	92.3	28.8
Monday	..... 4	29.842	49.6	40.6	S.	42.2	56.3	35.7	94.7	31.3
Tuesday	..... 5	29.531	49.3	38.7	N.	42.9	43.8	40.3	57.7	39.6
Wednesday	..... 6	29.770	41.3	37.6	N.E.	42.2	45.6	17.0	80.4	36.2
Thursday	..... 7	29.927	45.7	38.7	N.E.	41.6	53.3	35.6	90.2	31.7
Friday	..... 8	30.112	43.9	34.1	E.	41.1	51.0	33.2	98.6	27.2
Saturday	..... 9	30.182	41.4	39.6	N.	41.7	53.1	36.7	101.5	30.2
		29.9.7	42.1	39.0		41.9	51.7	36.3	87.9	32.1	
										0.116	

REMARKS

3rd.—Warm, bright, and pleasant.

4th.—Fine and generally bright.

5th.—Dull damp morning, wet afternoon.


6th.—Overcast throughout, with strong wind.

7th.—Bright and fine, with cold N.E. wind.

8th.—Brilliant all day.

9th.—Dull and damp early, but cleared gradually, and the afternoon and evening were fine and bright.

A variable week, but with little rain. Temperature about 2° below the average, and the same amount below that of the preceding week.—G. J. SIMONS.



COMING EVENTS

21	TH	Linnean Society at 8 P.M.
22	F	
23	S	
24	SUN	2ND SUNDAY AFTER EASTER.
25	M	
26	TU	Royal Horticultural Society. Fruit and Floral Committees at 11 A.M.
27	W	[National Auricula Society's Show.]

AZALEAS.

THE cultivation of Azaleas to meet the extensive annual demand for them in this and other countries has become an important horticultural industry in Belgium, and perhaps can only be ranked second to the bulb farming of Holland in numbers and value.

We are familiar here with the usefulness of these plants for decorative purposes, and visitors to the large metropolitan or provincial nurseries have also some idea respecting the numbers required to supply British gardens. A journey to the nurseries at Ghent, however, any time during the summer or early autumn, when Azaleas in various stages of growth can be seen by aeres, will convey a very different impression, and after visiting a few of the establishments where these plants are made a specialty the feeling becomes one of astonishment as to what can be done with such multitudes of plants. There are hundreds of thousands, and probably collectively they might be numbered by millions, not all of saleable size, but from those grafted in the current year through all the grades of three, four, or five year old plants up to gigantic specimens that when seen in the spring are massive standards or cones of brilliant flowers. From such a visit may be gained an adequate idea of the popularity of Azaleas and their importance from a commercial point of view; with their beauty and usefulness all gardeners are acquainted.

The advance of Azaleas in the favour of cultivators cannot be described as having been rapid, but it has been continuous and less subject to the changes of popularity extended to plants which have at times evoked a greater enthusiasm. More than a century ago Kämpfer and Thunberg made known to botanists the existence in Japan and China of the beautiful *Azalea indica*, which had been cultivated there in gardens for many years and was represented by numerous varieties, twenty-one being enumerated by Kämpfer. These were described in glowing terms, but a considerable period elapsed before plants were introduced, and it is probable that the first were obtained on the Continent, the earliest recorded in this country having been received during the first decade of the nineteenth century. Mr. W. Anderson, curator of the Chelsea Botanic Garden, obtained a plant in August, 1810, from China, the only one of several that were sent in the same ship, all the others having died on the voyage, the passage being greatly prolonged owing to the stormy weather experienced when rounding the Cape of Good Hope, an example of the difficulty attending the introduction of plants when only sailing vessels were at command. Mr. Anderson appears to have been successful in the culture and propagation of this plant, as several

years later he described his practice in the Transactions of the London Horticultural Society. Then and for a long time afterwards, however, *Azalea indica* was only increased by layers, a method also employed for some years in raising stocks when grafting was adopted. According to the second edition of Aiton's "*Hortus Kewensis*," the first plants were introduced by the Directors of the East India Company two years before this, but I have found no other mention of the circumstance.

Plants increased in numbers but slowly, and writing in 1812 Dr. John Sims in describing the first one figured in the "*Botanical Magazine*," plate 1480, said:—"This is a very rare plant which has been anxiously sought for by cultivators of curious and scarce exotics. We believe there are not above three or four individuals of it in the country, and of these only the one in the collection of James Vere, Esq., from which our drawing was taken, has as yet flowered." The gardener to the gentleman named, who resided at Kensington Gore, Mr. D. Blake, grew the plant very successfully, and was one of the first who forced the *Azalea*, for on February 16th, 1819, a specimen was exhibited at one of the London Horticultural Society's meetings "upwards of 6 feet high and in full bloom." The variety figured had one medium sized single deep red flower, giving a very poor idea of the attractions that were to be afterwards developed.

In 1819 two other varieties were introduced from China by Barr & Brookes, nurserymen at Balls Pond, through his collector Mr. Poole, one known as *purpurea plena*, the other as *indica alba*, both considered valuable additions at that time, and which may be still found in some collections. The variety *purpurea plena* is very distinct, and in colour is still unique, though the shape of the flower would not satisfy a modern florist. It has something of the hose-in-hose or rosette character, the outer petals being narrow, oblong, and spreading, the inner much smaller and less distinct. The colour is a peculiar but rather pleasing purplish mauve. The old single white, *indica alba*, had good sized pure white flowers, was profuse flowering, and even now is not despised in some old gardens. In the following ten years several other forms were introduced, some being described as species, but all closely allied to *A. indica*, such as *aurantiaca* in 1822, *phœnicea* and *variegata* in 1824; *lateritia* was introduced about the same time by a Mr. McKelligan, and in 1830 *Danielsiana*, with others, was brought over by Capt. Daniels to Mr. Tate of Sloane Street, Chelsea.

The attention of some cultivators both in England and on the Continent was soon directed to the improvement of the *Azalea* by crossing or hybridising, and as those obtained differed considerably in colours, it was speedily found that crosses could be readily secured. One of the earliest was *Azalea pulchra*, or *Rhododendron pulchrum* as it was named by some authors, which was raised about 1830 by Mr. Smith, gardener to Lord Liverpool at Coombe Wood, Kingston-on-Thames, between *A. ledifolia* and *A. indica*. This was something like a single form of *purpurea plena*, with mauve-coloured flowers and narrow petals, and could scarcely be considered as an improvement upon those already in cultivation. *Azalea Rawsoni*, however, obtained shortly afterwards by Mr. Menzies, gardener to Christopher Rawson, Esq., Hope House, Halifax, was an excellent addition to the list. It was said to have been obtained from a cross between *A. phœnicea* and *Rhododendron dauricum atrovirens*, but no exact account appears to have been kept, and there is some

doubt if the latter really was one of the parents. The flowers were much larger than those hitherto obtained, exceeding 3 inches in diameter and of a scarlet crimson colour, scarcely surpassed even now in richness of colouring. These formed the commencement of long series of varieties raised in this country, as in the following twenty years some thirty or forty were added to the lists, mostly forms of great beauty, and some of which have retained a high position until the present, notwithstanding the hosts of novelties that have been produced on the Continent. Messrs. Ivery & Son of Dorking, Knight of Chelsea, Pinck of Exeter, Kinghorn, Frost, Pawley, Smith, and Lee figure amongst those who took a prominent part in improving the Azalea in the fifth decade of the century, while shortly afterwards Mr. Todman secured several crosses which, like Flag of Truce, enjoyed a long term of popularity. The best of those grown at the time named were *Admiration*, from *Iveryana* and *lateritia formosa*; *Criterion*, from *Iveryana* and *Exquisita*, both raised by Ivery & Son and beautifully figured in "The Florist," 1852; *Duke of Devonshire*, *Apollo*, *Fielder's White*, which has been most extensively grown both here and on the Continent, especially in France, where it was a great favourite with the Parisian floral decorators for many years; *Iveryana*, *Murrayana*, *Gledstanesi*, *Modesta*, *Rosea punctata*, *Rubra plena*, *Rawsoni*, *Triumphans*, and *Vivicans*.

One of the pioneers in raising seedling Azaleas was Mr. Falconer, gardener at Cheam House in Surrey, and an experienced cultivator who knew him well informs me that many of the seedlings were afterwards distributed by Ivery of Dorking and Mr. Kinghorn, the latter obtaining the variety already mentioned as *Murrayana*, which was one of the best of its time. Mr. Falconer was also one of the first Azalea exhibitors with Mr. Carson and Mr. Green, who were also in charge of gardens at Cheam, and were well known to exhibitors of a quarter of a century ago.

Then followed the exhibiting period, during which visitors to the chief horticultural shows became familiar with the grandly flowered specimens that still render our early summer exhibitions so attractive. At the larger shows they are indispensable either in collections of stove and greenhouse plants, or in classes specially devoted to them, as is the Regent's Park, where they produce a most imposing effect. Some of the largest specimens have disappeared from the British shows, but there are still sufficient from private growers to render the exhibitions very brilliant, and providing classes for plants in smaller pots has induced a partial return to the style once customary, when Azaleas were restricted to 8-inch pots. Beautiful plants are staged in these classes, and from a decorative point of view they are much more useful in ordinary gardens than the larger specimens. There are now so many varieties, and they are so diverse in colours, that the selection of a few is a difficult matter. The following dozen have, however, been chosen with special regard to their free flowering qualities as exemplified in a large collection of the best forms obtainable:—*Jean Vervaene*, *Bernhard Andrea Alba*, *Madame Lefebvre*, *Bernhard Andrea Model*, *Duc de Nassau*, *Prince Albert*, *Alba Illustrata*, *Stella*, *Sigismund Rucker*, *Comtesse de Flandres*, and *Madame Vander Cruysen*. To these might be added *Deutsche Perle* as a beautiful double white; *Narcissiflora*, a neat double white, good for early forcing; and *Souvenir du Prince Albert* as a late variety.

The group of hybrids raised between *A. amœna* and *A. indica* constitutes a valuable addition to the cultivated

Azaleas, and interesting experiments have also been tried with regard to obtaining a hardy race of *Azalea indica* varieties, but some consideration may be devoted to these matters in another issue.—L. CASTLE.

CULTURE OF LETTUCES.

THE production of a plentiful supply of large solid heads of crisp Lettuce during as many months of the year as they can be had is what all kitchen gardeners should endeavour to accomplish. Sowings and plantings of approved varieties must be made at intervals from the middle of January to the middle of August, the first sowing being made in heat, either in boxes placed near the glass in a forcing house, or in a brick pit filled to within 6 inches of the glass with well-trodden leaves, and having over them 4 inches thick of light rich mould. As soon as the young plants appear, sufficient air should be admitted to prevent their making a weakly growth, and when large enough to handle prick them out in a similar position, or in a warm corner where they can have the protection of a few old sashes. They should be placed in rows 4 inches apart, and the same distance asunder in the rows, being watered and shaded from sunshine for a few days until the roots have taken to the soil. Towards the middle of April the plants may be thinned before they get crowded, making plantations in a warm border in rows 12 inches asunder, and the same distance between the plants in the rows. Take them up and transplant carefully with balls of earth adhering to the roots of the plants. In transplanting Lettuces in spring, which I am now doing, I always strew a little fresh soot over the ground, which is raked into it before setting the plants therein. This application of soot not only purifies the ground, but also enriches it, as well as saving the roots of the plants from the attacks of grubs. The Lettuce plants left undisturbed under the glass lights will supply a succession of salading to that now obtained from autumn-raised plants under glass in cold pits and frames.

About the middle of February a pinch of seed should be sown in a warm situation out of doors, and a piece of garden netting placed over the beds to prevent the birds interfering with the seed. The young plants, like those raised under glass, should be pricked out in nursery beds, or even in their final position as soon as they are large enough to handle, and then be watered to settle the soil about their roots. However, where the ground is to be had, there can be no question about the finest, the largest, and most solid heads being secured from untransplanted plants—that is, from plants the seed of which was sown thinly in drills 12 inches apart, and afterwards thinned to a foot in the rows. Thus grown, the plants experience no check.

The sowing made in February should be supplemented by small sowings the first and last week in April, and after that date at intervals of a fortnight or three weeks up to the middle or third week in August. In every case the Lettuces should be transplanted before they become crowded, the soil being made firm about the roots in planting, and in the absence of rain then, and during the time the plants are growing, water must be frequently given at the roots, so as to insure rapid growth and crispness of leaf in the plants. With the same object in view, as well as the destruction of weeds, run the Dutch hoe frequently between the plants. If the above simple cultural details are not attended to satisfactory results need not be looked for.

During the summer and early autumn months the best results will be secured from plants set in a moist, cool, but not shady situation. However, we have obtained annually large solid heads of excellent Lettuce from Celery ridges, the plants, two rows on each ridge, having been kept well supplied with water at the roots while growing. With most varieties, in order to secure perfectly blanched heads, it will be necessary to tie the leaves together with a band of matting when they have nearly attained their largest dimensions. Those for yielding salading through the late autumn and winter months should nearly, if not quite, have attained to full size, and be taken up with balls of earth adhering to their roots on the approach of frost, be planted a couple of inches apart in a cold pit from which frost and rain can be excluded, and should have abundance of air admitted to them in the absence of frost and rain. Good plantations of plants raised from seed in August can be made in cold pits, frames, and on warm dry borders where the plants can be protected from the effects of frost by a covering of dry fern being put on at night and removed during the day, for cutting as well as transplanting in early spring.

With regard to varieties, I find the following to be all that could be desired:—*Grand Admiral*, the least liable to "run" of any Lettuce that I am acquainted with; and *All the Year Round*, heads compact, beautifully white, solid, and crisp (Cabbage); and *Paris White* and *Paris Green Cos*, for spring and summer use.

For late sowing and planting, and for standing through the winter for early spring planting, Cooling's Improved Bath Cos, Hicks' Hardy White Cos, and of Cabbage Lettuces Lee's Immense Hardy Green, with Stanstead Park, have given entire satisfaction.—H. W. WARD.

BEDDING PLANTS.

BEDDING plants are often a great trouble in the spring. We are afraid to turn tender plants out of hothouses, or the more hardy out of doors, our glass structures becoming hopelessly crammed. It has been the practice here for several years to place all the more hardy material, such as *Violas*, *Calceolarias*, *Echeverias*, &c., where they are to flower about the beginning of April. We thus not only obtain room in protected structures for other plants, but those put out do very much better than if left later. When flowering plants are placed out a little Mushroom dung is mixed with the soil about the roots, and this proves of great advantage later on. *Calceolarias* are protected with Fir branches, which are later on left to support the plants. The disease previously had rendered the growth of these a matter of great risk, but since adopting the early planting not one out of a hundred has been lost. We also save much in labour by transplanting young rooted plants directly from the propagating pit to cold frames, where they are dibbled into beds of soil. No doubt this may appear a certain mode of rendering such plants, at the very least, unsightly or worthless, but provided proper precautions are taken, no such bad results follow. The worst thing that can happen to bedding plants is to half stew them in crowded houses, and then turn them out in commonly accepted warm weather to the mercy of sun and wind. It is under such circumstances that we find hapless objects long-stemmed and crowned with half-frizzled foliage, which hesitate a week or two after getting into their flowering quarters whether it is worth their while to attempt to grow just a little. But short healthy rooted cuttings transplanted as recommended after a few days seasoning begin to grow, and have no cause to stop growth until checked by the cold of the not far absent winter. The soil should be rather dry than moist as a first precaution. It must be made firm about the roots. The frames must be closed tight as the planting proceeds, and matted night and day until it is found that they are making themselves at home, then allow them light, air, and plenty of water.

Another mistaken practice is having cuttings quickly rooted early in the season. The present is a capital time to strike cuttings of many quick-growing plants. They root rapidly, and the growth they make is strong, firm, and more branching than if they had been coddled.

About two months ago I saw it advised to propagate Dahlias. We grow these by the hundred, and find no inconvenience arise from delaying propagation to the present month. The growths come away short and thick in a comparatively low temperature, roots are quickly made, and by the beginning of June we can have plants with roots filling 6-inch pots with shoots, short-jointed, close in the foliage, and dwarf in habit, which start away rapidly when planted out, and the reason for that is on account of the plants never receiving a check. Size is not everything by any means. We have repeatedly proved that small plants properly dealt with will altogether surpass large plants which have suffered a check. This is especially the case with seedlings. If *Asters*, *Zinnias*, &c., are sown now under the protection of a cold frame, and the plants dibbled into their places at the proper time, the grower not only saves labour but he secures better plants. But it should be mentioned that in all these cases of beds of soil in frames the depth should not be great; 2½ to 3 inches on a hard bottom is quite sufficient, the bottom being covered with dung which is not fresh; and care should be taken in the matter of seeds, especially that the whole of the dung is kept at the bottom. In all cases, in fact, the less dung in contact with the plants the better. As they make roots they find their way in good time downwards, and when wanted, the whole soil, plants and all, may be taken out in one mass.—B.

CHRYSANTHEMUMS.

IN reading the interesting and useful analysis of Chrysanthemums in last week's Journal, which will be eagerly scanned by the ever-increasing number of growers of the Autumn Queen, I was rather surprised to find that at the last National Show *Jeanne d'Arc* was exhibited more times than any of the incurved varieties—in fact, any one sort. Although so popular, this variety is to me disappointing. I have grown it in the hope of obtaining some such beautiful flower as that grown by Mr. Molyneux and figured in the Journal some time ago; but with all my kind attention I am not pleased with it, nor have I seen a bloom of it that quite took my fancy; indeed, it often mars an otherwise good

stand, notably among that dozen of wonderfully fine incurved flowers shown at the Aquarium last autumn by Mr. Doughty of Cranbrook, which won the first prize. *Jeanne d'Arc*, like the other eleven, was deep and solid, but the petals appeared to me thin, dirty, and confused. "Cassio, I love thee; but never more be officer of mine." I shall grow but one plant, just for acquaintance sake. I learn, too, from "E. M." that Val d'Andorre was raised by Marrouch. Belle Paule, Madame C. Audiguier, Marguerite Marrouch, and Val d'Andorre—what a splendid quartette from the seed-bed of one man!

Has there ever been an election of the best varieties of exhibition Chrysanthemums in your pages? I have not been a constant reader of the Journal many years, so the flower may have been favoured, as *Auriculas*, *Carnations*, and *Roses* have, before my time.—H. SHOESMITH, *Saltwood, Hythe*.

ASPARAGUS AND RABBITS.

IN reference to Mr. A. Harding's communication (see page 264), I have no experience of rabbits eating Asparagus. However, I will take this opportunity to refer to a method practised by Mr. John Garrett, Whittinghame Gardens, Prestonkirk, for preserving choice trees from the attacks of rabbits, as I have not seen it mentioned in the Journal, and the information may be useful to its readers. It is as follows:—Pieces of bark from the timber yard, such as Fir, Spruce, and Larch, are secured round the stems of the individual trees desired to be protected from the attacks of rabbits by pieces of tar string, Willow, or Hazel. This remedy for preventing rabbits barking trees is as effectual as it is simple and inexpensive. Whittinghame is well known to many readers of the *Journal of Horticulture* as being a first-rate gardening establishment, having numerous glass houses of modern erection, extensive and beautifully undulated grounds, as well as for the beauty and excellent condition of the choice collection of Conifers and other trees they contain, and concerning which I may have a word to say later on. It was while looking through this beautiful place, which, I may remark, is the East Lothian residence of the Right Hon. A. J. Balfour, M.P., Chief Secretary for Ireland, in September, 1885, that Mr. Garrett drew my attention to the use of bark as a means of preventing rabbits injuring choice trees by gnawing the stems.—H. W. WARD.

ROSE-GROWING FOR BEGINNERS.

(Continued from page 265.)

BUDDING.

THIS operation, which is the usual method, and the best, of propagating the Rose in the open air, is, like nearly everything else, very easy when one knows how to do it. There is not the least doubt, either, that the best way to learn how to do it is to watch somebody else at work who does. But many persons have not the opportunity of doing this, and so, for their benefit, I propose to give plain instructions, which will, I think, enable any average person to succeed. Before we can bud, however, we shall want stocks, and these will require to have been planted at an earlier period, so as to be in full growth at the time we wish to bud them. The reader had better refer to the remarks under the heading of "Stocks." All we need say about them here is that they may be planted any time between October and March, but like *Roses* themselves, the earlier they are in the ground the better.

In budding, we transfer a bud, or future branch, from one tree to another, the buds inserted being generally from some named variety, and the stocks or plants into which the buds are inserted being in most cases the wild Briar or other strong growing kind. The principal difficulty that beginners have to contend with is to avoid spoiling the bud in the process of removing the wood from it. In my opinion, providing the branch from which the bud is cut is in a proper stage of growth, or ripeness—in other words, if the buds are used at the proper time—there will be little difficulty in the matter. Budding may be performed any time while the sap is running, which is generally the case in this locality from beginning of July onwards to the end of September. But the sooner the buds are inserted, and the matting, or other material used in the tying, removed, the better, as this gives the buds more chance of becoming ripe, by being exposed to the air and sunlight, and enables them to withstand the frost of the following winter better. The riper the buds are, the greater will be the number of plants the following year.

Now we will suppose that we have a nice lot of standard and half-standard stocks, on each of which two or three shoots or branches for budding have been allowed to grow. Suppose also that we are armed with a sharp-bladed budding knife. These can be obtained from most nurserymen and ironmongers. The shape of the handle is not important, but the edge of the blade should be rounded at the point. Now when we have procured a nice half-ripe shoot of the variety we wish to multiply we are all ready to begin. "If you please," says somebody at this point, "what is a half-ripe shoot?" Now this is just the point where all beginners fail. If I can give instructions so that all can easily distinguish

and procure this necessary half-ripe shoot, then the remainder of the business will be easy. All my failures in former times, and I had some, arose over this half-ripe shoot. Well, here goes for a bold attempt at the solution of the mystery. If we break the prickles off a ripe shoot, we shall find that they are hard and dry, and when broken off, which may best be done by pressing them sideways, they leave a brown mark or scar on the bark of the

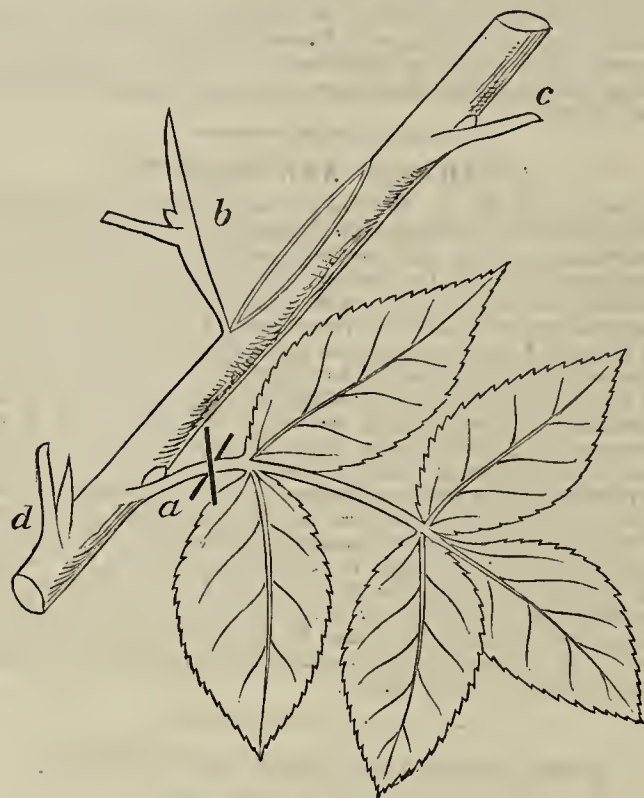


Fig. 55.

shoot. When in that state the buds on that shoot are too old for our purpose. If, going to the other extreme, we break a prickle off a young branch, we find that very often the prickle will not break off clean, but brings away some of the bark with it; there is no scar, but the bark is broken and the sap exudes, or, as Rose-growers say, the bark bleeds—in other cases, at a little further advanced stage, the prickle comes away pretty easily, but the bark bleeds as before, though not so much. The buds on both these examples are too young for budding. Later, the prickle may be broken off, and the bark will be found nearly dry, but quite green and fresh-looking, this is the branch for our purpose, and these are the buds we want. I should say that sometimes one portion of a branch may be too young for budding, while the other part is quite suitable; in this case the only way is to use the suitable piece and throw away the other. Now if you will refer to fig. 55, you will see just such a branch as you require. You will observe that at *a* the leaf still remains attached to one of the buds. It is absolutely necessary that all the leaves should be removed from any branch we wish to bud from the moment the branch is cut from the tree. The reason for this is not far to seek. We wish to retain as much sap and moisture as possible in the buds and the bark surrounding them; if dry, the bark will not leave the wood; the leaves if left on will keep on exhaling the moisture as long as there is any left. I have kept branches for budding with the leaves removed for a week in damp moss, and at the end of that time the buds worked beautifully. But to give an idea of the amount of ignorance there is in this world, I have known nurserymen send out branches of buds for budding with the leaves on, which, when they arrived at their destination, were, as a matter of course, found to be dried and withered. I do not wish anybody to take my word for all I have said here, but let him try for himself. Cut two branches, trim the leaves from one of them immediately, but allow the leaves on the other to remain, place them both in the sun for a few hours, and then see which is in the best condition for budding. The leaves should be removed at *x* as shown in the figure. In addition to the removal of the leaves, if many shoots are cut at one time, they should be placed in water, or damp moss, or something similar, until they are required.

Now take the knife in your right hand—except you are left-handed, like me, in which case you will hold it in your left—and holding the shoot in the left hand, cut a bud exactly as shown in fig. 55 at *b*. Do not cut the bud clean off, but when you have nearly cut through—that is, as far as the figure shows, turn the

knife blade back towards you, and the bud with it, and then tear it away, drawing it still towards you; it will come off with a long tail of bark with it. Fig. 56 at *e* shows a bud cut so, and you can see the bark at the lower end drawn away a little from the wood. Now drop the shoot and take the bud in the left hand, holding it between the finger and thumb as shown, the bud pointing towards the palm of the hand, and the long tail towards your right. Now insert the point or edge of the blade of the knife between the wood and the back of the bud, just at the extreme end or tail (at *h*), press your thumb on the blade, holding the tip of the wood firmly between the two, and then, moving the hand with a drawing and gradually turning motion from right to left, drag away the wood from the bud. Be sure always to begin drawing out the wood from any bud at the back, or behind the bud, as by so doing you are less likely to spoil it. If the bud is in a proper state, and the sap flowing freely, the wood will come out without any difficulty, and in this case the bud is almost certain to be whole and good. If the weather be dry, it sometimes happens—and this often occurs on dry soils—that although the buds seem to be of proper age and appearance, when we come to use them the wood will not come away from the bark without a lot of coaxing, in consequence of the absence of sap. If the soil be dry, therefore, it will be as well to give the roots of the plant from which we propose to cut our buds a good soaking with water about four hours before we cut the buds. In nine cases out of ten, in ordinary weather, and on ordinary soils, buds cut as advised above will be perfect, but it will be as well to explain how it sometimes happens that they are not so. We cannot always get just the buds we want in exactly the proper stage for budding, and in the case of choice varieties we must do the best we can, even if the buds are past their best. Now if the reader will procure a shoot of some common variety—about which he is not very particular—in the proper state for budding, and will cut and prepare a bud as advised, he will see, on inspecting the interior or cut side of the bud, after removing the wood, a tiny piece of pith like a grain of sand, right in the centre of the bud. This little germ may be seen at *i*. If in drawing out the wood the operator draws this out with it, adhering to it, then the bud will be blind, and can never grow. Up to a certain age the latent bud seems to adhere to the bark, afterwards it sticks more closely to the wood, and at this latter period of its existence it is next to impossible to get the wood out without bringing the bud with it. In the same figure *g* shows a bud badly cut.

Having got the wood out of our bud, we now proceed to cut



Fig. 56.

the end or tail off, when it will present an appearance like *f* in fig. 56. Place it lightly between the lips, taking care not to touch the wet or sappy part, then make two cuts in the form of a T (see *k* in fig. 57); turn the handle of the knife to the long cut, and run

the point up and down, and so open out the bark on either side of the cut. Now holding the bud between the finger and thumb by the leafstalk, gently insert the end of it under the bark as shown at *l*, and then with the handle of the knife, or with the fingers, the bud may be pushed home with a light pressure, as at *m*. Very little practice will enable the beginner to do this quickly and with ease. Lastly, if the bark of the bud, or shield as it is called, protrudes beyond the cross cut when in position, it should be cut across level with the cross cut, so that the bark of the shield and the bark of the stock just meet. In making the cross cut in the first instance, great care must be exercised so as not to cut deeper than just through the bark, otherwise, the wood being very brittle, the branch is almost certain to get broken short off at this point, and in that case the result is generally the death of the inserted bud. Now take a piece of raffia or tying grass about a foot in length. Let it be damped, because in this state it can be made to fit round the bud much better than when it is used dry. Bind the bud in tightly—you cannot bind it in too tightly, so long as the raffia holds together, but you can very easily bind it in too loosely—do not fear wrapping it up too much; the tip of the bud and the leafstalk are generally allowed to protrude (see fig. 57 at *m*), but it is much better to tie in both than to allow a lot of the cut portion of the bark to be uncovered; if this be so, the bud will in all probability fail. Let the knot with which you finish off be on the under side of the shoot, otherwise it will be the means of collecting rain, which, making its way into the cut parts of the bark, may cause our work, in every other respect correct, to end in failure. Fig. 57 at *n* shows the bud tied in.

The cutting of the bud, the removal of the wood therefrom, the making of the incisions in the stock, the inserting and tying in of the bud, should all be accomplished as quickly as possible. To avoid breaking and tearing the bark, to be careful not to touch the sappy parts of either stock or scion, and to keep all dirt and sand out of the incisions, are all points that should claim our attention if we aim at success. In about three weeks the buds may be gone over, and the tying material removed. If the buds appear healthy and plump no further attention is necessary, but if any of them are dead and shrivelled up, then it will be necessary to rebud them. To enable the operator to do this in the shoots budded before, it is as well at the first budding to make the cut in the shoot a little on one side—that is, suppose a first bud put in a little to the right side of a shoot, then a second, if found necessary, could be put in quite easily on the left or opposite side. If we bud right on the top at first, and the bud fails, it is next to impossible to insert a bud underneath without standing pretty nearly on one's head to do it.

Budding dwarf or ground stocks is not near so agreeable an occupation as the foregoing. Here the operator has to kneel down. It is no joke for him to occupy this position, even for an hour at a time, with his back in a curve and his head bent nearly to the ground. A pair of old trousers are most certainly a *sine qua non* for the work. If new ones are worn they will be apt to bag at the knee afterwards more than is desirable. A sack filled with straw and hay forms a good cushion to kneel upon, and will be found a boon.

In planting dwarf stocks for budding every care should be taken not to put them in too deep; the roots should be as near the surface as possible, so that the buds may be inserted, low down, close to the roots. Suppose a cutting is made, say 10 inches long, with the end or top of it just out of the ground, then the base of that stock or cutting will be about 9 inches deep. Suppose the bud be inserted just below the ground line, the result will be that when the plant is taken up and transplanted to permanent quarters, if it be planted properly, with the union of scion and stock about 2 inches below the surface, the roots will be about a foot underground, and much too far away from air and sun. No, let the stocks be planted with the roots as near the surface as possible; it is better to have to draw the soil round them as we do round Potatoes, if necessary to keep them moist during the growing season, than to have them put in too deep. We should be able to put the bud in immediately over the roots, not with 8 or 9 inches of stock between roots and scion, which, as stated before, necessitates deep planting. I spoke somewhere of the collar of a plant, and described it as being the part where the roots joined the branches; we must be careful to insert the bud below that, otherwise we shall be everlastingly tormented with crowds of suckers rising at all times. A plant of this kind should be got rid of at once; it can never be cured if budded above the collar. Stay! if very badly budded, should it happen to be on a Briar stock, it might be converted into a little dwarf standard.

When we are prepared to bud the stocks we must first draw away the soil round them, so as to lay bare the bark where we intend to insert the bud. The best tool for this purpose is a hoe, but in using it care must be exercised so as not to bruise the bark,

which is very soft and tender. A cloth will also be necessary to wipe the grit and dirt from the stems, otherwise these work into the cut parts and are very objectionable. In budding in a wholesale way, only a few should be uncovered at once, as the contact with the air and sunshine quickly dries the bark, and then it will not work so satisfactorily. If the stocks are in full growth—their state may be easily ascertained by cutting the bark and raising it—the bark will rise freely, in many cases even more so than that of the branches of standard stocks. The bud is to be inserted and tied just in the same way as directed for standards, the only difference in the two operations being, that in the one case we bud the branch, and in the other the root or lower part of the main stem. As in

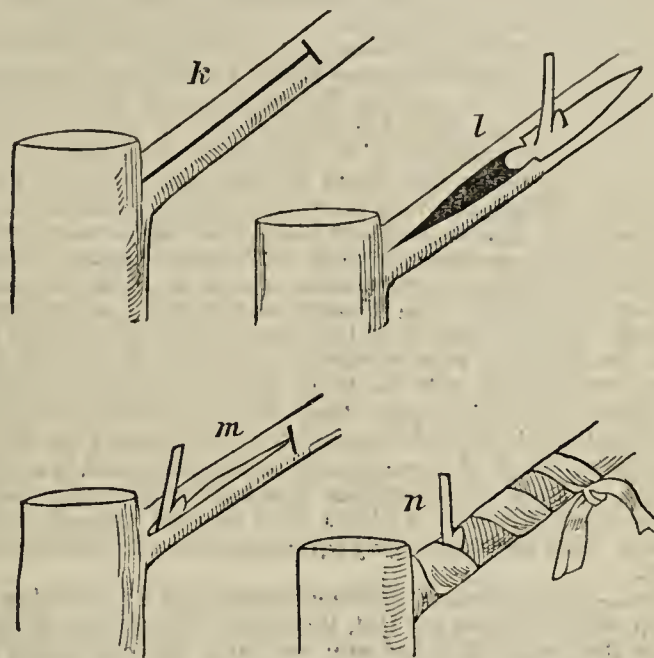


Fig. 57.

the case of standards, so with dwarfs, the buds may be, indeed should be, untied in about three weeks' time, and if alive and doing well they will need no further attention until spring comes. If any of the buds are found to have failed it is an easy matter to rebud the stocks on the opposite side of the stem.—D. GILMOUR, JUN.

(To be continued.)

GROWING PRODUCE FOR MARKET.

If there is anything that will try a gardener's ability it is growing for market as well as to supply the private establishment. He must not only be able to grow fruit, flowers, and vegetables, he must also be a good salesman, and be able to keep accounts. I feel sure there is plenty of room in our markets for home-grown produce, or how is it we have to compete with so much foreign produce, not only fruit but vegetables as well, much of which is grown under glass, and the houses are worked so that they get two and three crops in the season?

I will try and point out how I work my early vinery so as to make it pay. This house is started the first week in January. I have Vines on the south side only; on the north side I grow Tomatoes. Boxes are stood on the stage, and are half-filled with good maiden loam and a small quantity of manure taken from an old Cucumber bed. In these are placed, about 2 feet apart, good strong plants struck from cuttings the previous autumn, and these plants, owing to the want of sun, will be sure to become drawn. As I have only about 6 feet of rafter to spare for them, owing to the Vines, I have to bring them down so as to get my first setting of fruit close to the soil, and this is done with great care, so as not to snap the plants. Last year I coiled them down, then filled the boxes with good loam, and I never wish for a better crop of Tomatoes. This year, instead of coiling them, I have bent the first plant down and made it fast to number 2 stake, and number 2 plant to the first plant, and so on. We then fill the boxes with loam pressed firmly, taking care to remove all side shoots as soon as they show themselves. Tomatoes that are grown in pots for early use are all coiled down, and the pots then filled with loam. If this is properly managed we have first setting of fruit close to the rim of the pot. I only grow one variety of Tomato for early work, and that is a selected Old Red. I always get two good crops of Tomatoes from this house during the season, and this comes in very useful for the Ferns when they have made their growth in the Cucumber house. They are brought in here so as to harden them, and I do not find that the Tomato affects the Grapes in the least.

When Tomatoes are raised from seed great care should be taken in selecting the plants. If any of the seedling plants produce a bunch of

small leaves at their joints before side shoots issue, the plants should be thrown away. I have taken particular notice that when they fruit they only show two or three bunches at the most, and these fruits are much deformed; plants that make a quick growth and throw their side shoots out clear from the main stem are those to keep for a future crop.—J. WALLACE, *King's Lynn*.

CUCUMBER CULTIVATION.

(Continued from page 287.)

RAISING PLANTS.—The seed is best sown in large 60's or 3½-inch pots. A little more than half filling these with soil pressed firmly. Place a seed in each and cover them about half an inch deep. The pot may be covered with a small pane of glass, and the soil being moist no water will be necessary. In a temperature of 70° to 75° artificially the plants will appear within a week, and the glass must be withdrawn. It is essential that the plants be kept near to the glass. They cannot have too much light. If placed in bottom heat it must not exceed 90° at the base of the pots—80° is more suitable. Add soil as the plants increase in growth and water as necessary, only giving it to prevent flagging. Shift into 6-inch pots when the 3½-inch pots are filled with roots, watering a few hours previously so that the roots will turn out clean. Pot moderately firm, and place a small stick to each of those required for trellises, and secure them loosely with matting as the growths advance. Remove laterals as they show in the axils of the leaves up to the height of stem required to reach from the bed to the trellis. The plants will be fit to place out in their permanent quarters in four to six weeks. They must not be allowed to become root-bound, but if the bed is not ready at the proper time shift into larger pots. Seed of some age is occasionally used, it should be avoided. Plants are sometimes raised from cuttings; they are equally as objectionable as plants from old seed through impaired vitality. New seed thoroughly ripened gives the healthiest and best plants.

SOIL.—Turfy loam of medium texture cut 2 to 3 inches thick laid up until the grass is killed, three parts, fibrous peat of a sandy nature the top 2 or 3 inches only, one part, charcoal broken up so as to pass through an inch sieve half a part, old mortar rubbish broken up, the pieces of wood picked out, and passed through a half-inch sieve, half a part. The loam must be broken in pieces an inch to 2 inches square; the peat the same, and the whole thoroughly incorporated. The soil should be in that condition known as neither wet nor dry. If wet it must be placed under cover and have time to dry slightly before being broken and mixed. A bushel of soot may be added to every thirty of compost. It is good against worms, and adds immensely to the colour of the foliage and fruit. Clay's, Beeson's, Jensen's, and other manures are excellent, and may be applied at half the rate advised for soot, or one part in thirty. The whole to be thoroughly incorporated.

Good loam alone will grow Cucumbers well, the top spit being used, and with its turf if any. Even ordinary garden soil will answer, having some fresh horse droppings mixed with it to the extent of one-fifth. The débris of the rubbish heap reduced to mould, the woody portions picked out, charred, and returned make a capital compost, especially if it has had a tenth part of lime added to it and the compost has been turned a few times so as to become mixed. I have seen the top few inches of land found near rivers liable to be flooded used—in one instance it was used for more than fifty years without any admixture, and the results were very satisfactory. I have used the top 3 or 4 inches of peaty loam—i.e., the parts covered with short grass and fed off by sheep, both on the lias and limestone formations, finding it very suitable laid up until the turf was reduced and not adding anything. It was largely furnished with crystal sand. Roadside turf cut 2 or 3 inches thick and laid up in narrow ridges or stacks until the turf is decayed is also suitable. Manure of any kind is not advised when the compost consists in part or wholly of turfy material—decomposing matter.

THE BEDS.—If the bottom heat is furnished by hot-water pipes and rubble used, the roughest should be placed under, about, and over the pipes, the top 3 inches being finer, similar to road metal, having 6 inches of material altogether over the hot-water pipes, and this may be secured over the surface with a layer of turves, grass side downwards. The intention being to have a chamber, then the side walls should have a ledge, obtained by bringing up a 4½-inch wall to such a height that the curving or bottom of the bed will be exactly an inch clear of the sockets of the hot-water pipes. On this ledge the covers will rest. Flags, slates, or boards 2 inches thick may be used, oak being best. The joints must be left open, and if boards are used strips of wood being placed between at the ends to keep them a quarter of an inch apart. Some rubble, about 2 or 3 inches thick, should be placed on the boards or flags and

secured with a layer of turves grass side downwards. Instead of having a dry bottom heat a moist heat is readily secured by having the bed cemented at the bottom and sides up to the level of the ledge for the flags or boards, filling this space with water. An over-flow pipe will be required on a level with the upper side of the hot-water pipe sockets, and be conveyed to a drain. The water from the roof may be conducted into these bed cisterns, and warm rain water will always be available for watering and syringing. It can be removed from the cisterns or tanks by making a cesspool in the pathway, about 2 feet square, and the depth or a little more of a large watering pot, or 18 inches, cemented round and at the bottom, and a tap fixed 3 inches from the bottom of the tanks will allow of water being drawn from them at will. This is a very simple contrivance. I had water laid on so that the cisterns could be replenished when the rainfall was inadequate.

If fermenting materials are used for bottom heat the tan should be had under cover, kept dry, and turned a time or two before being placed in the beds. Three feet depth of it is sufficient, and it must be trodden down to lessen the sinking afterwards as much as possible, making an allowance for settling by keeping the bed somewhat higher in the first instance, but 3 feet of tan is ample even at the commencement. Leaves and dung being employed, they must be thrown into a heap in the proportion of two or three parts to one of stable dung, watered if necessary to make them moist, and when they are warmed through turn them, adding water to any dry parts, thoroughly shaking out any lumps and incorporating the materials. If the turning is repeated once or twice the materials will be in a mild fermentation, having parted with the rank steam, and should be put in the bed 4 feet thick very evenly and firmly, allowing about a fourth for settling. In the course of a week the heat will have reached its maximum in the materials, and if it does not exceed 90° or 95° a couple of inches beneath the surface the soiling operations may be done, but if the heat is violent make holes in it 9 to 12 inches distance apart and 18 inches deep to let out the heat, and when it has declined to 90° or 95° close these. Cover the fermenting materials with a thin layer of turves or an inch thickness of soil so as to keep back the vapour or modify it.

HILLOCKS AND RIDGES.—Form hillocks where the plants are intended to be placed 12 inches deep, 1 foot across at top and 2 feet at the base, cone shaped, with a flattened top. The soil made moderately firm. In a ridge the soil is continuous, the whole length of the house, 12 inches deep, 1 foot across at the top and 2 feet at the base. The centre of the hillocks or ridges 9 to 12 inches from the side walls of the house. With hillocks they must be at such distance apart as will suit the plants, with ridges the plants can be placed anywhere to suit the wish of the cultivator.

DISTANCE FOR THE PLANTS.—One plant to each light, 4 to 4½ feet, this for the 14 feet wide house. For the 10 feet house 6 feet. The distances are calculated on the principle that the plants will not be kept after they have borne a full crop or been in fruit for a period of three or four months. If intended to be kept longer, bearing over an extended period, the plants must have space for extension so as to keep up a succession of young growths to replace old or exhausted growths. This of course can be effected by cutting away every alternate plant. Sometimes plants are grown in pots, alternating with those planted out for early fruiting—an admirable arrangement, the permanent plants not being weakened by early fruiting. In this way a house furnished with plants from an August sowing will furnish fruit from the pot plants in autumn sufficient for the supply to Christmas.—G. ABBEY.

(To be continued.)

CUNNINGHAM'S DWARF WHITE RHODODENDRON.

IN reply to "W. D. B.," I have several reasons for thinking that this Rhododendron was sent out by Mr. Cunningham of Comely Bank, Edinburgh. My father brought it from there about fifty years ago, and at the same time plants of *R. caucasicum* album. Mr. Fraser of Comely Bank writes me respecting Dwarf White:—"This Rhododendron was raised at Comely Bank by my uncle, the late Mr. Cunningham, more than half a century ago, a fact I never before heard disputed." I am aware that *caucasicum* album is now named Cunningham's Dwarf White in some nurseries, but anyone who looked at the two sorts growing near each other would see the difference. The Dwarf White has smaller foliage, later in flower, and more pink in colour. I consider *caucasicum* album one of the most useful shrubs, as it is more hardy than *ponicum*, a most profuse bloomer, beautiful habit, and by having a succession of plants and a good heat easily had in flower from Christmas until May, a season when white flowers are not very plentiful. It is also a good plant for banks instead of Laurels, the habit being compact and growth sturdy. For town gardens and planting on graves it is invaluable. I should not speak with such confidence, but have kept both varieties true by layering for many years, and increased *caucasicum* album by tens of thousands.—JOHN CARTER, *Keighley*.



AT the meeting of the LINNEAN SOCIETY to-night (Thursday) at 8 P.M., a paper by P. Geddes will be read, entitled, "The Nature and Causes of Variation in Plants and Animals." The subject is a very interesting one, and was dealt with fully in Darwin's "Animals and Plants under Domestication." A discussion will follow the reading of the paper.

— UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY. — It has been proposed by the friends of the late Mr. J. F. McElroy, the devoted Secretary for a long period of the above named institution, to erect a "memorial stone" over his grave, as a tribute of their respect, and contributions to the fund—about £20 will be required—will be thankfully received and acknowledged by Mr. W. Collins, 5, Martinhoe Terrace, Martindale Road, Balham, S.W.

— CHANGE OF FIRM.—Mr. J. J. Dawson Paul and Mr. James Sendall, Rose Lane Works, Norwich, inform us that the partnership which has hitherto existed between them, under the style of "Boulton and Paul," has been dissolved by mutual consent, and that in future the business will be carried on by J. J. Dawson Paul alone, under the same style. All debts due to or owing by the late firm will be received and paid by J. J. Dawson Paul.

— LATE-BEARING MUSHROOM BEDS.—"Juvenis" writes, "I concur with all Mr. J. Muir has written on page 287 regarding late-bearing Mushroom beds. It has been our practice for some years past to make up a few beds in an unheated structure in a cold place during August and September, a time when we can secure material for them. Having been made and watered a little dry litter is thrown over them, and there they remain the whole winter without the least sign of vitality. A few genial days in spring, however, work a speedy transformation, and when April comes the surface of the beds is covered with Mushrooms in all stages of development. We find these beds produce better Mushrooms and remain in bearing longer than any others we make at any time in the year."

— "W. K." writes respecting the WEATHER IN PERTSHIRE, "We are having clear bright days and frosty nights, 7° on night of 16th. From 4° to 8° the rule for last eight or ten days. Vegetation is making little progress, although in sheltered places the hedges begin to show green. Early-flowering Rhododendrons injured. Farm work is getting rapidly forward."

— IN a box of flowers received from Mr. H. Cannell are a number of blooms of LILIAM CANDIDUM of full size, as if grown in the open air, pure, and deliciously fragrant. They afford conclusive evidence of the suitability of the old garden favourite for forcing, and plants well furnished with such flowers as those before us would be an acquisition to conservatories at this period of the year. It would be interesting to know how these delightful flowers have been so plentifully produced.

— IN reply to "T. S.," "J. L. B." observes that "KING OF THE EARLIES STRAWBERRY has not been satisfactory either as an early forer or in the open ground. Pauline, a variety sent out three years since by Mr. Paul, is much better both for forcing and in the open ground. The fruit is large, but not handsome in shape, and with us last year it was the first in the open ground, but they were not tried fairly together in forcing. As Pauline proved so good for first early the year before, our first batch was all of that variety. If 'T. S.' will forward me a plant of Princess of Prussia I shall be glad to try crossing with it. I have several seedlings fruiting this year for the first time."

— REPLYING to "Y. B. A. Z." on BUDDING SEEDLING BRIARS, Mr. D. Gilnour, jun., writes—"Your correspondent is wrong in supposing that I have not budded this stock; I and my merry men worked some thousands last season, and I am not aware that we experienced any greater difficulty than is encountered with the cuttings or Manetti. Seedling Briars when grown on suitable land are as straight as cuttings, but my experience is that nurserymen reserve such as have crooked

stems for those of their customers who do their own budding. Provided they are not too deeply planted there is no difficulty in budding seedling Briars, but your correspondent speaks of a cut 1½ inch in length. I have seen little bits of scions less than half an inch long put in and do as well as those of the orthodox length. It would be a very crooked stock indeed that would not give enough smooth bark to accommodate one of these. It is a great mistake to remove any shoots from the stocks at the time of budding. When I expressed the opinion that seedling Briar Roses would soon be as cheap as Manettis, I had fully considered the whole question. Time will show whether I was right or wrong in the conclusion I arrived at."

— "H. S., Saltwood, Hythe," recommends as a good selection of BRUSSELS SPROUTS FOR LATE USE Northaw Prize or Non Plus Ultra (Veitech). "They have been grown side by side and are the same. Whilst all other sorts have 'run,' this is in use at the present time (April 18th), and produces sprouts of medium size and very mild in flavour."

— A RECORD of each year's work amongst Chrysanthemums in a compact and condensed form is certainly desirable, and a commencement by Mr. L. Castle in the form of THE CHRYSANTHEMUM ANNUAL is before us. It is a neat sixpenny manual of thirty-two pages. Besides containing a review of the Chrysanthemum season of 1886, useful articles are included from Messrs. Molyneux, Bardney, Udale, Iggulden, Gibson, Orehard, Herrin, and Davis, concluding with the most comprehensive list of certificated Chrysanthemums, and the dates when the honours were granted, that has yet been compiled, and a list of Chrysanthemum Societies. The *Chrysanthemum Annual* is almost certain to increase in size yearly, and to meet with acceptance from cultivators of the favourite autumn flower to which it is devoted.

— MR. J. WOODGATE, The Gardens, Warren House Gardens, Kingston Hill, Surrey, sends us some blooms of DOUBLE CINERARIAS of considerable merit, full, globular in form, and varied in colour. One variety with bright rosy crimson blooms is very cheerful and pleasing, the others are chiefly shades of bluish purple from light mauve to dark purple. It is a good strain, and such flowers would be useful for cutting.

— GARDENING APPOINTMENT.—Mr. Wallen, foreman in the plant department, Ashton Court, Bristol, has been appointed gardener to T. Sudbury, Esq., Womersley Park, Guildford.

— NURSERY RATING.—At the Greenwich Police Court on Wednesday, before Mr. Montagu Williams, the case of the Lewisham Board of Works versus Cobb, noted in this Journal last week, was resumed. It was contended on behalf of Mr. Cobb that under Section 211 of the Public Health Act he was entitled to be rated at only one-fourth of the assessment for his nursery grounds, but it was objected that the Public Health Act did not apply to the Metropolitan district except where specially provided, and that an objection which was raised to the mode of assessment would be outside His Worship's jurisdiction. Mr. Montagu Williams did not consider his Court was the place to decide the question Mr. Cobb raised, and made an order for payment of the rates, remarking that the case at Worthing, to which reference was made last week, did not appear to be exactly like the present one, and he believed there was no dwelling house on the property in that instance. It was intimated that possibly there would be an appeal against His Worship's decision.

— THE monthly meeting of the BELGIAN HORTICULTURISTS was held in Ghent on April 11th, when the following were present—M.M. Baudu, L. Desmet-Duvivier, Ernest Delaruye, F. Desbois, Moens, A. Rosseel, Ch. Spae, with M. Ch. Van Geert of Antwerp as chairman, and M. Jules Hye as Secretary. Certificates of merit were awarded for Cypripedium Hyeanum from M. J. Hye-Leysen; Oueidium Papilio giganteum and Odontoglossum triumphans var. from the same; Vanda Denisoniana from M. Ad. D'Haene; Anthurium Andreanum maximum superbum from M. B. Spae; Azalea President Comte O. de Kerehove from M. Jean De Kneef; Adiantum fragrantissimum from M. Edouard Pynaert; Imantophyllum miniatum Louis Van Houtte from M. L. Van Houtte; Odontoglossum luteo-purpureum magnificum from M. I. De Smet-Duvivier; Odontoglossum (hybrid) from M.M. Vervae et Cie.; Cypripedium lo from M. le Notaire Moens; and Odontoglossum luteo-purpureum from M. De Smet-Duvivier. Honourable mention was

accorded to *Cypripedium hirsutissimum* and *Odontoglossum luteo-purpureum*, var., from MM. Vervae et Cie.; *Cattleya Trianae splendens* from M. L. De Smet-Duvivier; *Odontoglossum odoratum* from M. Jules Hye-Leysen; *Imantophyllum miniatum gandavense* from M. Ed Pynaert; *Cypripedium ciliolare* from M. le Notaire Moens; *Odontoglossum Alexandrae* from MM. Vervae et Cie.; and *Phalenopsis Stuartiana* from M. Paul de Hemptinne.

DEATH OF MRS. PEMBERTON HEYWOOD.

WE record the death of Mrs. Heywood, who was a true patron of gardening. She was the widow of the late John Pemberton Heywood, Esq., of Norris Green, Liverpool, Cloverley Hall, Whitechurch, and 15, Hyde Park Place, London, and died at her Shropshire residence on the evening of Wednesday, the 6th inst., near the close of her seventy-fifth year. The deceased lady only left Norris Green on the previous Friday in her usual health and spirits; she caught a severe chill, which ended fatally only two days later. Her remains were interred in the vault at Corra by the side of those of her husband, who died ten years ago.

The funeral procession was arranged to pass through the pleasure grounds and along what is known as the "Church Walk," with its avenue of stately Conifers, to the church, about one mile distant from the Hall. The procession was a very large one, and some hundreds of people lined the road to witness the last remains of one deeply loved, who will be widely missed for her innumerable acts of kindness and benevolence. Mr. Heywood, speaking at Cloverley, on behalf of himself and wife on the occasion of a presentation not long before his death, said, "It has always been our anxious wish to do as we would be done by, in endeavouring to make every one around us happy and comfortable." He succeeded, and the deceased lady, after his death, carried out to the letter the same noble and honourable principle. She was most amiable and the very essence of kindness to servants as well as friends. On several occasions we have heard from one of her servants, a well known gardener (Mr. William Bardney), "It was a pleasure to serve her, for a better employer, or one more worthy of true and faithful service, could not be found."

By the death of Mrs. Heywood gardening has lost one of the truest patrons. Although the gardens at both establishments were well kept during Mr. Heywood's lifetime they have been considerably improved during the ten years these establishments were presided over by the deceased lady. Norris Green may truly be called the "home for flowers," for in scarcely any other private establishment have we had the good fortune to see so many flowers at one time during the winter months. From the 1st of November to the end of April the conservatory was a paradise of flowers. Through all the changing fashions of gardening for foliage and other plants Mrs. Heywood never changed, and truly loved such old-fashioned flowers as Mignonette, Lily of the Valley, and Roses. These were three special favourites, and the same may be said of Sweet Peas, Violets, and Clove-scented Carnations. Among the many wreaths sent to the funeral an appropriate one from Norris Green Gardens was noticeable; it was formed of *Maréchal Niel* Roses, Lily of the Valley, and Mignonette—an uncommon combination, but sweet, beautiful, and much admired.

A quotation from the letter of one who was for four years in Mrs. Heywood's employ, but who now holds a position of trust in the northern counties, may fittingly close this brief notice. He says, "Although I am not now one of her servants, I feel deeply concerned and am truly sorry to hear the last of one so worthy the name of a lady. In the present age there are few so worthy to conduct the affairs of large establishments as she has done. I mourn her loss, because one of the noblest and best friends of gardens and gardeners has passed away."

THE LONDON NURSERIES IN APRIL.

MESSRS. J. LAING & CO., FOREST HILL.

THOUGH the name of this firm has been identified with the greatly improved race of modern Tuberous Begonias, they have also made specialties of other plants, and assisted in increasing the number of useful varieties. Caladiums may be mentioned as one of the features; florists' flowers generally, Ferns, fine-foliage plants, and many others, all have houses appropriated to them. Orchids have for some time received considerable attention, and a large collection of the best useful species or varieties for general culture has been formed. Like everything taken in hand by Mr. J. Laing they are well grown, and the *Dendrobiums*, especially *D. Wardianum*, are remarkable for their vigorous health, their long, stout pseudo-bulbs, large flowers, and rich colours. In one of the houses a pretty group of choice Orchids had been arranged recently, very prominent in which was the excellent specimen of *Dendrobium Falconeri* in a 9-inch pot, bearing over 200 fine flowers. This plant was recently shown at South Kensington and greatly admired. *Cattleya Trianae* was represented by a variety with large flowers, 8½ inches in diameter, the petals 3 inches across, the lip 2½ inches in diameter, of a rich crimson colour, the sepals and petals deeply suffused with a rosy hue. Of *Cattleya Lawrencei* there were several varieties, all more highly coloured than the majority of varieties, one having a pure white throat, a beautiful contrast with the rich lip. *C. Warszewiczii* delicata, as its name implies, very delicately tinted, like *C. Trianae Schröderae*. Several *Dendrobiums*, comprising the golden and maroon spotted *D. Cam-*

bridgeanum, *D. Devonianum*, *D. primulinum*, and *giganteum*, the showy *D. fimbriatum oculatum*, the white *D. Jamesianum*, *D. coerulescens*, *D. lituiflorum*, *D. aggregatum* and its variety *majus*, *D. Wardianum*, several fine varieties, one with the lip 1½ inch in diameter, *D. crassinode* and its beautiful variety *Barberianum*, which has its sepals and petals deeply tipped with crimson. *Lycaste Skinneri* and *L. Harrisoni* were also included in the group, and as some of the plants were suspended from the roof, others standing on the stage, the tallest at the back, a very agreeable effect was produced. The *Cattleya* house contained a large collection of species and varieties, *C. intermedia* being still in flower, also a larger and better coloured variety named *Laingi* in which the lip is deep crimson and the sepals and petals purplish. The bright orange scarlet *Laelia harpophylla* was attractive, *Cattleya Trianae* having also afforded abundance of its flowers, some 200 having been open at once. The cool house contains some choice varieties of *Odontoglossum erispum*, *O. Pescatorei*, *O. Cervantesi*, *O. Rossi majus*, *O. Oerstedii majus*, *O. pulchellum*, and *O. luteo-purpureum*, while in a warmer compartment are some healthy plants of *O. vexillarium*, showing flowers freely, and proving by their vigorous growth how they appreciate the treatment they receive. *Anguloa Clowesi* thrives surprisingly at Forest Hill, having pseudo-bulbs 8 or 9 inches long. *Pleiones* are also in excellent condition, with *Cœlogynes*, *Masdevallias*, and innumerable others.

A capital span-roofed house, 100 feet long, has been erected for the double Tuberous Begonias, another house, somewhat larger, being devoted to the single varieties, so that every provision is being made for an even more extensive show of these plants than usual. About 120,000 seedlings have been raised this season, many of which are now being gradually pricked off into other boxes, or potted singly. The houses will be devoted as before to the best named varieties and novelties of exceptional merit; but the great bulk of the stock will be planted out in beds, as in previous seasons. A very large demand has sprung up for bedding Begonias in recent years, and extensive as is the supply provided they have repeatedly found it insufficient to meet the demands.

Caladiums when well grown are handsome plants, and if they have been somewhat neglected in recent years it is not because they are difficult to grow. It is somewhat too early yet to see Messrs. Laing's collection at its best, but these were the most notable of the early plants. *Mithridate*, crimson centre, green edge; *Elsie*, white flushed with light crimson; *Comtesse de Condeixa*, very large leaves, rich crimson, one of the darkest; *Albo-luteum*, pale yellow and white; *Ludemannianum*, crimson-veined, spotted with white on green; *Madame Kœchlin*, semi-transparent, white, with red veins; *minus erubescens*, dwarf, small leaf, red edged with green, of similar size to *argyrites*, for which it forms a good companion; *Raymond Lemonier*, pale yellow, like *albo-luteum*, with purplish mauve spots; and *Comte de Germiny*, similar with red spots.

Amongst the flowering plants the *Imantophyllums* are extremely showy, *sulphureum* being a very fine variety, as also is Mrs. Laing. *Azaleas* comprise a choice collection of the best varieties in cultivation, with *Epacris*, *Heaths*, miscellaneous hardwooded plants, *Wistaria sinensis*, with its graceful pendulous racemes of flowers in abundance, *Acacias*, *Boronias*, *Chorozemas*, &c. At the Vineyard Nursery, a short distance from the Stanstead Park Nursery, large numbers of Vines in pots are grown, as well as Figs in pots, with quantities of bedding plants, chiefly Zonal and Bronze Pelargoniums, *Aspidistras*, and Roses for cutting. At the Rutland Park Nursery the general stock of Roses, shrubs, &c., is grown, and a fourth nursery is devoted to miscellaneous crops.—VISITOR.

CLAY SOILS AND THEIR IMPROVEMENT.

[A paper read by Mr. Joseph Radfield, Manch House Garden, Brinnington, Stockport, before the Manchester Horticultural Mutual Improvement Society.]

IT very often happens that a gardener in taking a fresh place has a number of difficulties to contend with; for how often do we see a piece of ground set apart for the production of vegetables in some out-of-the-way corner, or if the situation is favourable then the soil is perhaps unsuitable, yet in some instances the gardener is expected to produce vegetables as satisfactory as those of his neighbour whose kitchen garden is more favourably situated. It is of course the duty of the gardener to face these difficulties, and to try to overcome them if possible. It is one of these difficulties to which I wish to draw attention. Professor Donaldson in his work on Clay Soils, says, "Clay, in the proper derivation of the word, means an unctuous, tenacious earth, that will mould into various forms." It is the "kley" of the Dutch, the "elai" of the Welsh, and the "claica" of the Saxon; which terms have all a similar origin with the Teutonic "kleven" to stick or to adhere, because of the clammy adhesive quality of the substance. Now, clay soils are stiff, cold, and very tenacious, and it is these qualities which we wish to combat, and which I purpose briefly to take in consideration.

Drainage is of the first importance. Clay soils are very retentive of water, thereby producing coldness; for if not drained the water has to be evaporated through the surface of the soil. Now, it is a well known fact that water in evaporating carries away with it much of the heat of the soil, but draining it helps to remove the water from the soil in another way, and air takes its place, which maintains the temperature of the soil. In draining, the first point is to ascertain

where the best place is for the outlet of drains, and let it be if possible at the lowest part of the ground. The depth of the drain will have to depend on circumstances, and it should consist of 4-inch round tile pipes, and, ordinarily, should be from 3 feet to 4 feet in depth. The secondary drain pipes should be from 15 feet to 18 feet apart, running parallel with each other, but in very heavy clay soils I prefer them 15 feet apart; they should be from 2 feet 6 inches to 3 feet in depth, and have a fall a quarter inch to the yard, and more if the ground will allow. They should consist of round tile pipes, 2½ or 3 inches in diameter, and in filling the drain I would recommend that they be filled for 12 inches to 18 inches depth with ashes such as come from our mill boilers, or with clinkers from the stoke-hole, rough gravel, and failing these rough brashwood, as these have a tendency to keep the drains open, and they draw the water from the soil more effectively than by the old method of placing the clods over the pipes and filling with the material taken out. Some years ago it was necessary to cut through a drain such as I have recommended, and we found it as clear as on the day it was put in, and doing its work effectively.

Another means of improving soils is by the use of lime. Lime has the property of loosening the texture of the soil, of driving off offensive matter from the soil, and also of releasing the plant food stored up in the soil. The best way of using lime is to work fresh lime from the kiln in the soil while digging. I have seen old gardens very much improved by an application of fresh lime used as above. Professor Donaldson says:—"A loamy soil of the richest kind will be formed by the mixture of clay lands with lime, as the aluminous earth affords a strong durable base for the constitution of the soil. Clay is the chief element in the composition of all rich lands; in due proportion it imbibes and retains the necessary moisture, and the presence and action of the other ingredients prevent the hurtful excess, husbanding the use and regulating the expenditure." Calcareous matter is also an essential ingredient in soils, and it will be supplied by the lime that is used to effect the new formation. By this process a most productive soil will be produced. Although clay in superabundance is by no means a good soil, yet clay and lime when mixed tend to form an artificial marl, of which, when occurring naturally, the fertility is well known. The nearest artificial approaches to it are made in the way now recommended.

Burning is another mode of improving clay soils, but not having had any experience in the matter I cannot speak about it. Thompson, in his "Gardener's Assistant," says:—"Burned clay is extensively used in the heavy lands of Essex, Suffolk, and other parts of England, and the practice is attended with great success. The beneficial action of burned clay is chiefly due to its altering the texture of the soil, rendering this less compact, and consequently more permeable to air, water, and the roots of plants; and to the burned clay containing a much greater proportion of soluble alkalies, more especially of potash and soda, than unburned clay, a considerable portion of the alkaline substance contained in the latter being rendered soluble in the process of burning. Burned clay, by improving the texture of the soil and supplying a greater amount of alkalies to plants, must prove beneficial to all crops, but it is more especially on Turnips, Carrots, and Potatoes, or on plants requiring a large amount of potash, that the beneficial effects of this manure are visible.

Sand should also be used, but not alone. There should be plenty of manure used, horse manure being the best; it prevents the sand and clay from forming into a kind of mortar, which they would do if sand alone were used; besides, the manure lightens the ground as well as fertilising it. I also get all the sweepings from the gravel walks, weeds, Cabbage-stalks, and any refuse from the kitchen garden, cuttings of grass, old soil from the potting bench, in fact any rubbish of this description is put in a heap and kept turned over and allowed to decay, and this would be improved by the mixture of quicklime. In frosty weather this is wheeled on the ground, and afterwards dug in; and I have also used fine coal ashes, in fact anything which would tend to lighten or improve the soil by making it more porous.

Working the soil is a very important factor in the successful management of these soils. It used to be the custom for a man to dig with a spade roughly, and it was a sign of his skill in this work to arrange each spadeful in rows perfectly level and straight, or to illustrate it like so many bricks placed on end in a row, leaning against one another. I think that this is one of the worst ways of working clay soils, especially after it has been trodden and made solid in the previous year, for by thus simply delving it over with a spade you are only turning it over top to bottom without working it up and disintegrating the solid lumps that have just been turned over.

Another way is to ridge it in rows in autumn as soon as the ground is cleared, and then in the spring to fork these down and dig in manure where wanted. I have tried this plan, but the better method is, I think, to form a trench, say 2 feet wide; I then get a stout fork and raise up the subsoil; I then turn the soil with

forks, only using spades for throwing out the loose soil at the bottom of the trench, and then forking up the subsoil as before. By this means the soil is thoroughly broken up, thus admitting air to the soil, and you can better work in manure and other ingredients. Hence the soil is in a better condition for supplying the plants with a constant supply of that food which is so necessary for the health of plants. I think that forks ought to be more used in our kitchen gardens than they are; they are far better in working soils of a heavy nature, and spades ought not to be used only in cases where we cannot use forks.

In conclusion, I would recommend that in this class of soils too early a sowing should not be practised. Take Peas for instance; I never sow before the first week in March, yet I have gathered Peas before those who have sown a month earlier. By being planted under more favourable conditions seeds sown in this way have fewer checks and are not so liable to injury by frost or damp as those sown earlier, and they grow stronger and give better results.

INDIAN EXPERIENCES.

(Continued from page 291.)

BOMBAX MALABARICA is a tree of enormous size, throwing out large buttresses from the lower part of the stem, and producing the valuable silk cotton of the bazaars. When covered with its bright scarlet blossoms, in some cases 6 to 8 inches in diameter, and towering above its forest companions, it forms a truly striking feature in the jungle. There are several species of *Eleocarpus*, mostly of low stature, but conspicuous from their wealth of white and pink flowers. Of *Leguminosæ* there are numberless examples; two, *Butea frondosa* and *Erythrina indica*, making the jungle blaze with their masses of orange-scarlet flowers. *Pterocarpus marsupium* yielding the kino of commerce, *Aerocarpus fraxinifolius*, *Albizia Lebbek*, and many others. *Eugenia jambolana* producing large quantities of fruit, about the size of small Damsons. *Bassia elliptica* and many other trees of great value on account of their timber and other products. Teak and Sandalwood trees abound on the confines of the Mysore Territory, and are the only two kinds of timber monopolised by the Government; other timbers are very seldom exported, owing to the difficulty and cost of carriage.

Ferns in great variety abound all over the district, from the tiny *Hymenophyllum* on the rock to the *Alsophila* or Tree Fern. *Lygodium scandens* grows amongst low scrub on the borders of Rice fields and swamps, climbing up the bushes and covering them with its graceful fronds, keeping bright and green all the year round. *Drynaria quercifolia* is found abundantly clinging to the branches of large trees, overhanging rivers, and is a magnificent plant when seen just after the rains. *Osmunda regalis* grows in thick masses on the muddy banks of the large rivers, and during the monsoon is completely submerged, the rivers rising from 20 to 30 feet above dry weather mark. On the water subsiding the *Osmunda* at once throws up an abundance of its pale green fronds, which quickly fringe and beautify the river banks. Tree Ferns are only found in the Ghaut forests and the higher range of the Bramagherry Hills. I have noticed that Ferns in the Wynaad country, with such exceptions as *Lygodium scandens*, which revels in the bright sunshine, and one or two species of *Asplenium*, which seek the darkened retreats of the deepest forest, where the sun's rays never penetrate, are invariably found in greatest perfection where they are quite shielded from the direct rays of the sun, whilst at the same time enjoying an abundance of light. They are frequently seen in great beauty on roadside cuttings, overhung by jungle trees on the one side, but clear and open on the other. I have seen *Davallia tenuifolia* in large masses and with fronds a yard long under such conditions. Openings in the jungle, caused by the uprooting of large trees, or natural landslips, are also favourite haunts of Ferns, and are always seen in such situations at their best, the same conditions being present—viz., shelter from the direct rays of the sun and plenty of light. I cannot but think that the plan adopted at Kew and other places of using tinted glass in the cultivation of exotic Ferns is a mistake. It not only gives to the plants a somewhat ghastly hue, but, I think, is not conducive to their well-being. Shading of some kind is doubtless necessary, but in this, as in many other things, Nature should be pretty closely followed if success in a high degree is to be attained.

A few words may be said with regard to the plants not indigenous to the locality, but that have been introduced and are found growing luxuriantly in gardens and plantations. As hedge plants the Rose, Gardenia, Hibiscus, Lantana, and others are much used, and require little trouble in their culture, branches merely stuck in during the rains will immediately take root and grow. The double scarlet Hibiscus makes a splendid hedge, flowering profusely all the year round. Many others, both single and double, are common. The double scarlet variety is called by Europeans the "Shoe Flower," from the fact that the juice from the crushed flower is used as a substitute for blacking in polishing boots and shoes. It also gets the name of "Subaltern's blacking," the meaning of which term is obvious. Crotons and *Caladiums* flourish in the gardens, the latter being in perfection all through the heavy rains. They are also grown in pots placed in the verandahs of houses, and always grow luxuriantly with very little care, the colours coming out in rare beauty. *Draena terminalis* is a very common plant, and is wonderfully easy of propagation, branches simply lopped off and roughly inserted in the ground striking immediately. The colour of the leaves

of this plant during the dry season is of the most brilliant description. *Poinsettia pulcherrima*, *Allamanda*, *Clerodendron Balfourianum*, *Plumbago*, *Maranta*, *Aloeasia*, *Aralia*, *Bougainvillea glabra* are all represented, the latter at an elevation of 3000 feet changing its trailing habit to that of a shrub, flowering freely, but the flowers not so bright and showy as on plants grown at a lower elevation. On the Malabar coast this plant is seen to great advantage, growing in gardens and climbing its way up trees of a stronger growth, which it hides with its clouds of gaudy flowers throughout the dry season, forming one of the great floral features of the seacoast line.

Although the fact will not be disputed that horticulturists have given frequent proof that cultivated specimens of plants can be produced, surpassing individual examples of the same species found under strictly natural conditions, yet this assistance of Nature, as it is frequently called, has, to some extent at least, led cultivators of the present day into the mistake of almost, if not altogether, ignoring even the very slightest imitation of the natural conditions under which plants are found in a wild state, and in so doing, as I imagine, of fostering in very many instances a disposition to disease, and hindering longevity. That a long season of rest is a natural condition of most plants found wild in India is a fact patent to all who have lived in that country, and that this period, dependent as it is upon the rains, is not unfrequently extended to even six months out of the twelve is also a fact not unworthy of note.

Amongst the numerous tribes of plants that annually pass through this long season of drought and consequent rest in the Wynaad, the stems and leaves, in some instances, becoming so dried and shrivelled as to be almost beyond recognition, and in others disappearing altogether, the roots alone surviving. I would give the names of a few only as striking examples:—*Adiantum lunulatum*, *Saccolabium guttatum*, *Cissus discolor*, *Impatiens Jerdoniae*, and one or two species of *Dendrobium*. The first named, *Adiantum lunulatum*, is a deciduous plant certainly, but the fact of the roots surviving unscathed this severe climatic test, situated, as they frequently are, in unprotected situations, fully exposed for many months to strong easterly winds and burning sun, points, I think, to the likelihood of one of the absolute requirements of the plant being a long season of uninterrupted rest. Immediately the first showers of spring have fallen on the baked and parched earth the plants reappear, as if by magic, in abundance all over the Bamboo jungle, springing from the clefts of trees, rocks, and stumps, or nestling in thick masses close around the stems of large trees, or the bases of boulders and rocks, and quickly draping all these objects with a rich mantle of graceful verdure, which contributes in a marked degree to the general beauty of these jungles all through the rainy season, but as quickly vanishing with the breaking up of the monsoon clouds and the reappearance of the sun.—PLANTER.

(To be continued.)

DEATH OF MR. RICHARD CARR.

WE have to record with much regret the sudden death of a well-known gardener, Mr. Richard Carr of Welbeck Abbey, who for the past eight years has had charge of the Duke of Portland's gardens on that estate. Mr. Carr visited London on Wednesday, the 13th inst., and returned by the fast train from King's Cross, due at Retford at 8.16, and had to change at Retford to get into the slip carriage for Worksop. When entering the station he tried to get out of the carriage, but instead of alighting on the platform he fell off one of the short high steps on the continuous footboard below, and was dragged along some distance and crushed against the platform before the train pulled up. It was then found that he was so fast that it was impossible to extricate him without removing one of the short steps, and this was unscrewed as quickly as possible. When released Mr. Carr was sensible, and asked that a telegram might be despatched at once to Welbeck, and his wish was complied with. He was terribly bruised, but the most serious injuries were internal, and before a medical man could be summoned he had lapsed into an unconscious state. He was removed to the Queen's Hotel, and Dr. Pritchard attended to his injuries, but he died from the shock about half-past ten o'clock. Upon receipt of the news at Welbeck Mrs. Carr and a son of the deceased were driven to Retford as speedily as possible in the Duke of Portland's carriage, but they did not reach the Queen's Hotel until eleven o'clock, too late to see Mr. Carr alive.

A correspondent who was an intimate personal friend of Mr. Carr's, sends the following note:—

"When Mr. Carr took charge at Welbeck, eight years ago, in the late Duke of Portland's time, the garden and grounds had been kept as distinct departments, and they were more like a large manufactory than a private place. When the present Duke came to the estate Mr. Carr took the whole of the gardens, pleasure grounds, and surroundings to level, turf, seed, plant, and keep them in order (including the roads), several hundred acres in extent. This certainly must have been a very heavy tax upon any one individual, besides all other duties, in the performance of which I believe he gave every satisfaction to his noble employer. He also planted avenues and extensive shrubby borders and herbaceous borders, that at one time were heaps of stones. The kitchen and fruit gardens at a very recent date were like so many large fields, but are now planted with the best fruit trees that show promise of good crops; new walks were formed and open quarters that will produce vegetables in quantity for a large establishment. These gardens are

some 36 acres in extent, and are now in good working order. Fruit trees under glass have been well cared for, so that a good supply of the best fruits was always obtained, also plants and flowers which have been in great request. Mr. Carr never shrunk from his duty, was always up and doing, in fact, a straightforward, hard-working man, and very much respected by the Duke of Portland, by whom he was presented some three years ago with a valuable gold watch in appreciation of his services. He leaves a widow with seven sons and a daughter to mourn his loss. He was interred at Cuckney Church April 16th, age fifty-six years, and was followed to his last resting place by the heads of all departments on the Welbeck estate, and carried to his grave by the garden labourers, &c. Friends that followed included: Mr. Tait (D. B. and Tait), seed merchant, Manchester; Mr. O. Thomas, Chatsworth; Mr. A. Henderson, Thoresby; Mr. M. Gleeson, Clumber; Mr. W. Elphinstone, Shipley Hall, Derby; Mr. Thos. H. Sutton, Worksop Manor, with others."



DENDROBIUM CRASSINODE × WARDIANUM.

LAST year, at the meeting of the Royal Horticultural Society on March 23rd, Baron Schröder exhibited a plant of this remarkable *Dendrobium* in good condition, and a first-class certificate was unhesitatingly awarded to it. After another season's trial it has again flowered, and has been even stronger and more handsome than it was before. The characters both of the growth and flowers afford clear evidence that it is a hybrid between the two well-known species *D. crassinode* and *D. Wardianum*, and for that reason alone it would be very interesting, as *D. crassinode* does not appear to have been employed as a parent of any artificially raised hybrids. *D. Wardianum* was employed with *D. lituiflorum* in the production of *D. meians*, but this I believe is the only hybrid in which *D. Wardianum* has been concerned, *D. nobile* and *D. heterocarpum* having been the principal species hitherto experimented with, or which at least have produced the best results. The plant represented in the illustration (fig. 58) had a growth 3 feet long bearing forty-seven large flowers, two of the racemes having the unusual number of four flowers, several three and some two, there being fifteen racemes in all. The flowers are not so large as some of the *D. Wardianum giganteum* type, but they are of better form, the petals and lip broad and beautifully proportioned. The sepals and petals are white, tipped with crimson, the lip also tipped with purplish crimson, golden in the centre, and two maroon dots at the base, one each side of the column. There is a brightness and freshness about the flowers that is very pleasing, and grown as it is at The Dell, the beauty of the plant is quite exceptional.

The other plants of *D. Wardianum* are similarly strong, and have flowered nearly equally as well, several having growths 3 to 4 feet long, in baskets 7 inches square, and one grand specimen has had as many as 124 flowers open at one time. The magnificent effect produced by these plants has been previously noted, but it can scarcely be imagined what a charming display is afforded by thirty or forty such specimens suspended from the roof of the stove with their pseudo-bulbs hanging down like long wreaths of flowers. These plants are treated generously, and repay for the attention they receive by their wonderful success. They have a good season of growth when they are encouraged by plenty of heat, moisture, and by weak liquid manure. Then they have a good season of rest and ripening in the porch of the vinery, close to the glass, and fully exposed to the sun, and where during the winter the temperature is often down to 40°. From these in February some are removed to the stove, and a succession is maintained by introducing other plants at intervals.—C.

ODONTOGLOSSUM ROSSI MAJUS.

IT is unnecessary to commend this Orchid to the attention of your readers, but it seems to me that all its good qualities are not fully recognised, and like some other Orchids its capacity for enduring rough treatment is much greater than is imagined. To test the hardiness of *Odontoglossum Rossi* as fully as possible I decided this winter to place a strong plant in an unheated house, and there it remained until the end of February. On several occasions there were 5° or 6° of frost in the house, and a *Camellia* was killed near the *Odontoglossum*; the latter, however, seemed quite free from injury, and commenced producing its flowers. It was then removed to a room where there is a fire daily, but no gas, and the flowers are as fresh still as if they had only been expanded a week. It has been in the room for about seven weeks, and will probably last for several weeks longer. The long period during which *Lycaste Skinneri* will last under similar conditions is well known, and I have repeatedly proved its qualities in that respect, also *Cypripedium insigne*, but I confess this *Odontoglossum* has surprised me, as its flowers have not the substance of the *Lycaste* nor the *Cypripedium*, and few would expect it to possess such powers of endurance. I should like to know whether any of your readers have tested the amount of frost the hardiest of the cool Orchids will bear. We read of some been found white with frost, and I believe that Messrs. Veitch & Sons state in their 'Manual of Orchidaceous Plants' that *Odontoglossum Rossi* is found

growing on stunted Oaks in Mexico, but we have not much information upon the matter as regards other species. Perhaps Mr. Smec has learnt something of this in his experiments with Orchids out of doors.—AN AMATEUR.

NEW ROSES.

HYBRID PERPETUALS.

THE indefatigable manner in which our neighbours across the Channel send out yearly a number of worthless Roses to tempt the unwary rosarian exhibits a zeal worthy of a better cause. I say worthless, for this is evidenced by one simple fact. The

rubbish, and I fail to see even in the very glowing descriptions (which we must always heavily discount) there is anything to make us look to it with much anticipation of surprise. It may be as I once heard a person say when someone, speaking of a very voluminous writer of the seventeenth century, "It is only a sea of mud." "Yes," was the reply, "but there are fine eels in it;" so it may be now. Arranging them under the growers' names, I place first,

M. EUGENE VERDIER, FILS AÎNÉ.

DUC DE BRAGANZA.—Poppy red, strongly shaded with violet, a new colour, large, full, globular, of very fine shape, very vigorous, superb; yes, but one dreads these shaded violet Roses.



Fig. 58.—DENDROBIUM CRASSINODE × WARDIANUM.

National Rose Society published its catalogue of exhibition Roses in 1884. Since then about 260 new Roses have been sent out, excluding a very few of English and American origin; yet when it was debated the other day whether the Society should publish a supplement to their catalogue it was decided in the negative, as there were so few of any real value amongst them, and thus the Society is endeavouring to the best of its power to protect Rose growers by not encouraging them to buy what can only end in bitter disappointment.

In looking at the lists which have been circulated I do not think that there is much to cause a flutter amongst Rose lovers. Laeharme has nothing; Guillot only a Hybrid Tea which sounds something like Her Majesty, which I see an American writer in a contemporary describes, as far as America is concerned, to be an utter failure. Charles Verdier has nothing; Eugène Verdier of course plenty; and while he has given us some excellent Roses we must always remember that they are weighted by an immense amount of

DUCHESSE DE BRAGANZA.—Very delicate satiny rose, shaded brighter rose, extra large, full, well shaped, and vigorous.

EDOUARD LEFORT.—Velvety crimson, shaded, and blotched with fiery reddish purple, of good shape, vigorous; a fine new Rose.

JULES BARIGNY.—Reddish crimson, back of petals paler, large, very full, of good shape, vigorous, superb.

MADAME EDOUARD MICHEL.—Very bright fresh rose, very large, full, with large petals, well shaped, vigorous, Tea-scented; a superb variety.

MILLE DE LA SEIGLIÈRE.—Apparently raised by a M. Maindron, and sent out by E. Verdier, very fresh and delicate silvery rose, large, full, of good shape, euppé, vigorous. A seedling from La Reine.

PRINCE HENRI D'ORLÈANS.—Clear cherry earmine, large, full, of beautiful shape, and vigorous; an exquisite flower when half expended. I suppose from this that, although called full, it is not what we call so.

PRINCESSE HÉLÈNE D'ORLÉANS.—Brilliant fresh rose, large, full, of a nice rounded shape, capped, vigorous, and very sweet.

PRINCESSE LOUISE D'ORLÉANS.—Fresh satiny rose, bordered with silvery rose, large, full, of good shape and habit, with large petals, vigorous, superb. I am afraid if this Orleans family has any permanence (which I very much doubt) there will be no end of confusion.

MADAME LUREAN-ESCALIAS.—A joint concern with M. Maindron, beautiful delicate rose all over, full, of good shape and habit, vigorous; of the Victor Verdier class.

GUILLOT.

MADAME JOSEPH DESBOIS.—This is called by the raiser a Hybrid Tea, but following our rule it must be classed among Hybrid Perpetuals. Its parentage is not unlike the reported parentage of Her Majesty—Baroness Rothschild × Madame Falcot—and seems to be much of the same type. It is said to be very large, measures from 5 to 7 inches across, fleshy white, with delicate rosy salmon centre; very full and of good shape and habit, very vigorous.

LEVEQUE.

ALPHONSE DRAWIEL.—Blackish poppy red lit up with carmine; large, full, globular, and of perfect shape; one of the best dark Roses yet brought out.

ALY PASHA CHERIF.—Bright fiery vermilion shaded with velvety crimson; large, full, well shaped, and very vigorous; extra good.

COMTE DE PARIS.—Poppy red, shaded, and illumined with bright purple, brown, and vivid crimson; large, full, of very good shape, and very vigorous; a grand new Rose.

BARONNE DE ST. DIDIER.—Reddish crimson or bright cherry shaded with lilac, and purple; edges of petals often edged with white; large, full, and of vigorous growth.

MADAME EDOUARD DE BONNIÈRES DE WIERRE.—What a name for English gardeners! Amaranth red illumined with carmine and poppy red; large, full, of good shape and vigorous; a grand new Rose.

MADAME LÉON HALKIN.—Bright reddish crimson shaded with dazzling purple; large, full, globular, of perfect shape and vigorous; extra good.

MADAME THIBAUT AINÉ.—Bright rose cherry, petals often bordered with white; large, full, of beautiful shape and vigorous; quite a distinct variety.

LIABAUD.

ÉMILE MASSON.—Velvety reddish purple; large, full, very vigorous and free-flowering.

JULES DERONDILLE.—purplish crimson; large or medium, full; very vigorous and free-flowering.

MADAME TREYVE MARIE.—Clear red shaded orange, and turning to bronze in its prime; very vigorous and very free-flowering; a new and distinct colour. Quite correct if description goes for anything.

MADemoiselle MARIE DAUPHINE.—Beautiful delicate rose with a fresh lilac reflex in the centre; very large, full, and of very vigorous growth; a new and distinct colour.

VIGNERON, FILS.

BIJOU DE COUASNON.—Bright velvety red; large, full, of good shape and habit, very vigorous and free-flowering.

MADAME MARCEL FAUNEAU.—Rosy lilac, centre darker; very large, full, globular; vigorous and very free-flowering; a seedling of Alexis Lepère. This last was brought out twelve years ago, and as I do not believe that it was ever seen in England, and certainly never regarded as an acquisition, it does not appear a great distinction to say that John Smith was the son of Thomas Smith.

MONSIEUR RICHARD.—Bright velvety fiery red; large, full, vigorous, and very sweet.

DUBREUIL.

ATTRACTION.—This is one of the so-called Hybrid Teas. Clear carmine shaded China Rose, petals edged pale rose with a yellow base; flowering in clusters from three to five flowers on a fine stem; vigorous, with an intermediate scent between the Damask and Tea Roses; very free flowering, extra good.

VEUVE SCHWARTZ.

JEAN BAPTISTE CASATI.—Very delicate rosy lilac, centre white, large, cupped, of good shape; vigorous and very sweet-scented.

MONSIEUR M. BARON.—Dark reddish violet; large, full, vigorous, and very sweet.

BERNAIX.

MADAME A. SCHWALLER.—Another so-called Hybrid Tea; rosy flesh, paler at the base and deeper on the edges of the petals;

globular on opening, and becoming cupped when expanded; of bushy growth and very free-flowering.

BESSON.

DOCTEUR ANTOINE JOLY.—Brilliant rose, deeper at the base, and shaded salmon; large, very full; cupped, and of good shape; vigorous; a seedling from Baroness Rothschild.

ORGEUIL DE LYON.—Dark velvety crimson, illumined with vermilion, with a fiery reflex; large, full, of good shape and vigorous.

GONOD.

LOUIS ROLLET.—Reddish purple; large, full, and of most remarkable vigour of growth.

STEPHANIE CHARENTON.—White, the three outer rows of petals slightly rose-coloured, the centre ones being bright rosy cherry; large, full, of beautiful shape and very vigorous.

PERNET, PÈRE.

MADAME DESIR.—Bright rose, shaded orange and salmon; a completely new colour; large and nearly full, very vigorous, free-flowering, and sweet-scented.

BERRIÈRE.

MADAME DE SILVÈ.—Bright red with lilac reflex; very large, well-shaped, and very vigorous; a seedling from M. Fillon.

MADAME JEANNE BOUVET.—Flesh colour or silvery rose; of medium size, well-shaped and vigorous; a seedling from Jules Margottin, with the same wood and habit of growth.

MOREAU ROBERT.

SOUVENIR DE CAPITAINE DES MARES.—Very bright cherry shaded gooseberry red; very large, globular, well-shaped; full, of very vigorous growth, and very free-flowering; extra good.

VICOMTESSE DE SERVES.—Delicate rose glacé on the edge of the petals, the centre being darker in tint; very large, full, and of perfect shape; exceedingly vigorous, and flowering in clusters; a good new Rose.

SOUPERT ET NOTTING.

THEODORE LIBERTON.—Dazzling carmine, shaded with a light changing to darker rose, back of petals light purple; large, full, shaped like a Damask Rose; vigorous, and very sweet-scented.

C. LEVET, JEUNE.

MADAME HONORÉ DEFRENE.—Beautiful dark yellow with coppery reflex; large, full, of good shape and vigorous growth.

Reading the above list in the light of the National Rose Society's catalogue, I fear that the greater proportion of the raisers are unknown to fame as having raised a Rose deemed worthy of a place in their catalogue of exhibition Roses, although some of them have been engaged in sending out new Roses for twenty or thirty years, while many of them seem to be new hands, who may perhaps give us something better than their forefathers. If, however, there are amongst these varieties anything that is worth growing, we may perhaps expect it from Guillot, Liabaud, and Levêque. Amongst English Roses, I think the most promising that I have seen is Great Mogul, which may be described as a very dark shaded A. K. Williams. There are two Hybrid Perpetuals from a new source of which I have heard (especially of one) a good deal. I mean the north of Ireland, where Messrs. Alex. Dickson and Sons of Newtownards have been for some years engaged in raising seedling Roses. The two I allude to are—

EARL OF DUFFERIN.—Hardy and vigorous habit, with dark green foliage, an early autumn and late bloomer; flowers large, full, and finely formed; colour rich brilliant velvety crimson shaded with dark maroon, the finest dark Rose ever produced. It was awarded at Helensburgh the prize for the best Rose in the show out of 1250 blooms. It has already received seven first-class certificates.

LADY HELEN STEWART.—Very strong grower and a most continuous bloomer, flowering freely until late in autumn; colour bright crimson scarlet, with beautifully smooth petals of great substance.—D., Deal.

ROYAL HORTICULTURAL SOCIETY.

APRIL 12TH.

Scientific Committee.—Present: Dr. M. T. Masters, in the chair; Professor M. Ward, Professor A. Church, Mr. G. Maw, Dr. Lowe, Mr. G. F. Wilson, Mr. O'Brien, Mr. MacLachlan, Mr. W. G. Smith, Mr. A. Smee, Professor Boulger, and Rev. G. Henslow (Hon. Sec.).

Hybrid *Bulbocodium* (Supposed).—Mr. Smyth forwarded flowers as requested at the last meeting, but which proved to be exactly like forms exhibited by Mr. Maw, who had no doubt they were from true seedlings and not a cross.

Crocus sp.—Mr. Maw exhibited the following:—*C. biflorus* var. *Pest-*

lezzæ, from near Constantinople, with a very small white perianth; *C. minimus*, DC., from Ajaccio, Corsica, with dark purple outer petals and lighter coloured ones within; *C. imperati*, from Baviello, South Italy, the only species with a rose-coloured perianth; also a white variety of the same, first introduced by Dr. Lowe, who sent it to the late Rev. H. H. Crewe.

Corbularia obesa.—Mr. Maw observed that the "obesa" form—not a distinct form—was characteristic of many, as of *C. nivalis*, both of larger and smaller kinds, *N. nanna*, found wild near Bewdley, Salop.

Chionodoxa sp.—Mr. Maw also showed specimens from Crete, having a much smaller flower than *C. Lucilæ*. Dr. Masters observed that the latter will degenerate in a wet soil so as to assume a diminished stature, which was, therefore, probably solely due to its habitat. A *Fritillaria* from Erzeroum, Armenia (chocolate-flowered), and which was figured in the "Botanical Magazine" with a yellow form from mountains near Smyrna; also a vernal form of *Colchicum* from the Dardanelles.

Kief.—Mr. Ridley reported upon his examination of the plant producing this intoxicant, which proved to be a dwarf form of *Cannabis sativa*, or Hemp, due to its growth in a poor soil. It has smaller and darker coloured fruit than that of ordinary Hemp.

Radulum.—Mr. O'Brien exhibited specimens of a form of this fungus growing on imported Orchid blocks, and also a young form of some species of the Locustidæ on *Dendrobium Falconeri*.

Primula sp.?—Mr. G. F. Wilson exhibited a small species of Primrose which had come up amongst Himalayan seed, and several blossoms of seedlings of Scott Wilson, showing the retention of the blue tint, though exhibiting great variety of colours.

Primrose, White Variety.—Mr. W. D'Arcy Godolphin Osborne sent a plant of a white Primrose found wild near Biarritz. Though a common cultivated form it is probably rare in a wild state. It was growing in red clay.

Primula, Hybrid.—Colonel Clarke exhibited blossoms of a hybrid of *P. ciliata* crossed by pollen of a dark Alpine Auricula. The colour closely resembled the latter, but the corolla was very large, being quite half as large again as the Auricula, while the centre was of a deeper yellow.

Rhubarb, Hybrid.—Colonel Clarke also showed a leaf of a hybrid between *Rheum palmatum* and the common garden Rhubarb, *R. undulatum*.

Cattleyas, Malformed.—Mr. Ridley reported upon these as follows:—(1.) The lip was twisted 90°; there was one petal only, three stamens, and one rostellum, with all the pollen aborted. (2.) One petal was somewhat labelliform, and apparently two rostellula were present.

Roses hypertrophied.—Professor M. Ward reported on these. The protuberances were very remarkable. He detected a plasmodium within the cells, showing a definite relationship to the outgrowths. In partial cultivation there was a definite plasmodium outside the cells; it was accompanied by a Myxomycete, seen in yellow accretions of spores. It somewhat resembled the growth in Turnips, but was of an unknown form. He proposed to investigate it further.

Hyacinths, Malformed.—Mrs. Lee sent bulbs of Hyacinths from which the short undeveloped spike of buds had prematurely fallen by a constriction of the peduncle, about an inch below the base of the flower buds. They were referred to Professor M. Ward for further examination and report.

Azalea Sport.—Rev. G. Henslow exhibited a mauve-coloured blossom which had appeared on a shrub with nearly scarlet-coloured flowers. The foliage on the sport was much larger and more hairy than on the usual branch. Moreover, in the sport there was a tendency to doubling, but not in the normal flower.

Portugal Narcissi: Notes on, by Mr. A. Tait.—A communication was read, giving details of Mr. Tait's and Mr. Barr's observations in North and South Portugal. *Corbularias*.—Of these was found a large form, perhaps *conspicua* or *serotina* in marshy ground, and in sandy woods of *Pinus maritima*, edging the marshes; there was a much dwarfer form, varying in colour from a rich orange to pale yellow, distinctly striped with greenish white; all probably of one species, but with variations, due to environment, as some of the larger kinds, planted in 1886 in a dry situation, have become reduced this year.

On higher grounds in North Portugal the *Corbularias* are small, with Rush-like, twisted, and drooping leaves; but at 3000 feet in the Gerez Mountains was *C. nivalis*, with erect leaves and small flowers, varying from a rich yellow to pale sulphur.

In February a fine form, probably *C. obesa*, *Salish*, was found in Estremadura at Montegil. Mr. Tait remarks upon the varying length of the styles in this species, and thinks that it is an unstable character for classificatory purposes. He notices—what has been already observed by others—a similar instability in the stamen of *N. triandrus*, an approximation towards heterostylism. It is rare, he adds, to find the style deep down in the Ajax section.

A small-flowered form of Ajax, transplanted in 1885, has now borne flowers equal in size to the larger form, the small size being attributed by Mr. Tait to poverty of soil. He notices great variation in the form of the flower representing "Maximus," "Major," and the "Tenby," suggesting to Mr. Barr that these forms originally came from Portugal. Near Braga forms with the perianth paler than the crown, as in the English and Scotch wild form, were met with. Ajax bicolor occurred in abundance, and was the nearest approach to pl. 1187, "Botanical Magazine." Mr. Barr has found *N. Johnstoni* in several localities in North Spain. *N. triandrus* is especially remarkable for the extraordinary variations in form of flower, foliage, size of bulb, &c., together with the curious trimorphism of the sexual organs. *N. triandrus* var. *concolor* was found in a few mountainous situations by Professor Henriques, and Mr. Tait identifies it with Parkinson's *N. juncifolius* flore luteo reflexo (*Parad.*, p. 92), remarkable for its golden yellow colour. *N. Jonquilla*, a remarkably large form, has flowered with Mr. Tait.

Mr. Tait concludes his interesting communication with some remarks on hybrids, all of which are of a creamy-white colour when due to the natural crossing of *Pseudo-Narcissus* and *N. triandrus*. Other hybrids from Gerez are uniform in size, colour, &c., and partake of the features of both the parents—viz., *C. nivalis* and *N. triandrus*. He asks, Why are these hybrids so rare, and do they die out?

CAMELLIAS AFTER FLOWERING.

THE plants are going out of flower now almost daily. Indeed the whole stock of Camellias will soon require to be treated as plants that have done flowering, and as this treatment bears more directly on their subsequent success than the attention they require at any other time a few hints may be acceptable to many amateur readers. When Camellias are not in flower they may be syringed frequently with advantage, and this generally keeps the foliage clean and healthy; but glutinous matters sometimes adheres to them, and syringing will not remove it, yet it is absolutely necessary for the health of the plants that it be removed, and it should be cleaned immediately flowering ceases. Sponging is the surest way, using a mixture of Gishurst compound, 3 ozs. to the gallon of water. Before beginning to sponge syringe the bushes several times with water to soften the dirt, and during the operation of sponging the whole of the foliage may be kept constantly wet, as it is so much easier to remove the dirt when it is soft and wet than when hard and dry.

Equally important is having the roots in proper order. No Camellia should be planted out in a bed or border without the greatest care being devoted to the drainage, as it is only in the first instance that this can be properly treated, and there is no easy way of rectifying the drainage of plants which are growing in a bed. Effective drainage in their case is everything at first, but it is different with plants in pots, as they can easily be turned out without breaking the ball of roots, the drainage renewed or replaced, and the plant returned without feeling a check. Wherever the soil has become stagnant or in bad condition do not fail to examine and rectify the drainage. Planted-out specimens are very liable to suffer from being too much disturbed at the roots, and in trying to improve the drainage it can best be placed round the sides than directly under the plant, and if the vacancy made to permit this is filled with good soil an improvement will soon take place. Firm soil is also very necessary to the success of the plants, indeed they will not remain long in good health if the soil is loose. Seeing that the drainage is right and the soil firm should have annual attention as the plants cease flowering. The soil may be allowed to become slightly dry before beginning to work with it, but after the operations I have suggested are finished it must not on any account be allowed to become dry, and from the day the plants begin growing until the flower buds are well developed the soil at the roots may be kept constantly sweet and moist. In some cases the growth begins before the blooms are all over, but the main growth rarely commences until then.

Apart from cleaning the foliage in the first place they should be frequently well syringed with clean water afterwards, and once daily is not too often to syringe them in good weather. I do not approve of keeping them very close, as the growths are rather liable to become long and weakly, and this also applies to plants grown under a dense shade. We have not shaded a Camellia for many years, and we have always plenty of blooms from November until April. Besides, the present being a good time to clean the foliage and to place the plants in proper condition for another year, repotting and planting may also be done. Sometimes when plants are in bad health in pots their growers think they would thrive better if planted out, but my experience leads me to say that it is easier to improve a Camellia in a pot than when planted, and I should not be inclined to plant a specimen in a half dead condition. The plan would be to get it into good health in a pot and then plant. The object of planting out is to secure large specimens which will require less attention in watering than those in pots, and all the finest Camellias in the country are planted out. Success is certain when good plants are used and the operation carefully performed, but all depends on that. The bed must not be less than 2 feet 6 inches in depth, and at least 6 inches of this should be taken up with carefully arranged drainage. A layer of fibrous turf may cover this. The plants need not be placed too deeply, and the whole bed filled firmly with a mixture consisting of equal parts of peat and loam, to which has been added a liberal dash of coarse sand. This mixture will suit Camellias under all conditions of culture.

The plants requiring potting most may be divided into two classes, one being those which have outgrown the limits of their pots and require more root room, and the other those which have not taken advantage of their root room, have become sickly and failed to fill their pots with roots. The remedy for the first is to give them larger pots, and the best thing to do with the second is to turn them out, removing all loose or useless soil from their roots and repot in smaller sized pots. There is no better way than this of improving the condition of sickly Camellias. All plants that are repotted must be shaded for a time, keeping the atmosphere in which they are placed very humid. About this time last year we had a plant at the corner of a bed that had become so large as to block the way, and it had been cut in so often that it was rather stumpy and not very ornamental, but being a useful variety we were not willing to throw it away. The only thing to do with it was to move it from the corner. This

we did in the manner indicated above, and although it was almost destitute of small fibrous roots it recovered, and has lately been a mass of flowers.—J. MUIR, *Margam*.

THE INSECT ENEMIES OF OUR GARDEN CROPS.

THE GRAPE.

If amongst the flowers of our gardens the Rose holds that pre-eminence which entitles her to the name of Queen, the Vine may surely be accounted king amongst the fruits we cultivate. For this reason it receives special attention from the gardener, and its insect enemies are better known and more diligently hunted up than those of many plants that are in still larger cultivation and of greater importance as producers of food. It is a curious fact that the English climate some centuries ago favoured the outdoor growth of Vines in a way it does not at the present time, if we take as authentic the records of the existence of numerous vineyards, especially on the slopes about the metropolis. Grapes now obtained throughout Britain in the open air are a small proportion to those ripened in hot and cool houses; but if by culture under glass the Vine escapes some conspicuous insect enemies it has still perils from persistent though smaller foes. Taking it generally, the Vine does not with us receive much harm during the fruiting season; it is otherwise in several of the chief Grape-yielding countries of Europe, where the blossoms, unripe and ripe fruit, are attacked by hosts of destructive caterpillars hard to eradicate.

Taking first its wingless enemies, most of them small in size yet often rapid in multiplication, we notice that the long-bodied many-legged millipedes of the family Julidæ may occur in the borders about Vine roots, but seldom numerously enough to do appreciable harm. These creatures may be killed by clear lime water or soot water, and a very weak solution of carbolic acid has lately been recommended for destroying them, say ten or twenty drops to a gallon of water. Moisture suits these insects, as it does woodlice, which get sometimes into vineries, though I doubt whether they do any mischief there. Undoubtedly they commit damage to the roots and underground stems of various plants. Of all things used to kill insects the most unpleasant to them is gas tar, even at a good distance off, which would show that they possess the sense of smell. The more active centipedes, well-known visitors to stone fruits, seldom enter Grapes, and as during the early part of their life they certainly devour insects that come in their way, they scarcely rank as foes of the Vine.

This plant, both in and out of doors, has a fascination for flies of numerous kinds, and not merely at the times when its flowers and fruit may be supposed to attract. It has been thought some of these come to prey upon minute insects, but they seem fond of walking over its leaves and branches, leaving undesirable marks. Here is where the spiders come in, and if their webs cannot be tolerated amongst the Vines they might, perhaps be allowed to remain in spots where they are little noticed, as the quantity of insects that spiders entrap is considerable. A wandering spider which seems to like the warmth of the houses, and is grey with whitish bars, is called *Salticus scenicus*; it leaps upon flies, running up to them with a sideling movement. This should never be killed. Then another not unusual species, supposed to be a naturalised foreigner, is the brown and black *Theridion tepidariosum*, which makes an ingenious tent-like structure on a leaf to enclose its eggs. As this is a web-spinner we can scarcely expect it to be left undisturbed. On the Continent, however, its relative *T. benignum* (so called because the sexes are able to live near each other without quarrelling) is positively encouraged amongst the Vines, because its slight but plentiful webs, thrown over the clusters of ripening Grapes, are deemed to keep off insects that are harmful. And of course the spindly *Pholcus*, often called Daddy Longlegs, perambulates over vineries sometimes, and may be let alone, as its web is mostly in odd corners where it is not very noticeable.

We come now to a pest which is popularly known as the red spider, but which is properly a mite of the spinning group, and apt to be troublesome, though the Vine sustains less injury from this than do some other plants of more delicate growth. Red is the adjective applied to it, yet many of these are not red, tints of green or brown being not uncommon; in fact, the colour varies according to the fluid they have been imbibing. It is also thought that while young they are generally greenish, and acquire the rusty red colour as they mature. This species is probably a native of Britain, but a few naturalists think it may have been imported with exotics. It is at any rate no stranger wherever plants are cultivated, and occurs upon those in the open air, if it prefers the shelter of houses. These mites, on the "happy family" plan, live under the screen of the webs they spin on the leaves, sometimes on flower buds, as in other instances they are chiefly found on the under side of Vine leaves, which become patchy and curled. Possibly as much damage is done by the fluid secreted by the mites upon the leaves as by their suction,

and their multiplication is rapid. The larval is distinguished from the imago stage by the possession of only six feet, and it appears to be the fact that the last brood of the autumn pass through the winter as larvæ, retiring from the leaves, or falling with the dead leaves, to the soil where they congregate beneath stones or clods. Boisduval has noticed a second and much smaller species of mite on Vine leaves, besides this *Tetranychus telarius*, spinning a much looser web. I do not think it has yet been observed here.

Sulphur has been spoken of as the cure for red spider attacks; being in the position that tobacco holds with regards to the aphids and some of its kin, recently doubt have arisen on the point, from the sulphur failing of its end unless so used that it is perilous to the Vines. This is also true of the fumes of ammonia, which, obtained by heating certain kinds of manure, will kill both spider and thrips, but may possibly affect the growth of any plant also exposed to them. There is of course not much danger in trying these in vineries when there are no leaves, and the buds are quiescent. A correspondent commends the application in winter of the vapour to be obtained by first making about a pound of sulphur into a paste with boiling water, then adding 2 or 3 gallons of water and some lumps of unslaked lime; this removes spider and mildew. Mr. Iggulden advises dusting the foliage with sulphur by means of a dredger should the insect show itself during the early summer, and washing the branches or rods with a strong decoction of quassia made soapy destroys this and other insects. Fir-tree oil does not seem very efficacious, nor some of the advertised compounds. Whatever solution may be adopted for cleansing the leaves must be thoroughly applied to the lower side; injudicious syringing may scatter, not kill, insects.

Mites of the genus *Rhizoglyphus*, allied to the cheese mite, have been taken on Vine roots, though they are commoner on bulbs, rhizomes, and corms; they seem to cause swellings, but in the case of the Vine do no appreciable injury. One of these has received the specific name of *phylloxera*, because it was not only found in company with that pest, but from examination was believed to feed upon it in some stage; this has been questioned, and further inquiry is needed as to its habits. When young the mite certainly imbibes the juices of plants, and probably follows the *phylloxera* as a matter of convenience, and to breed it as a check upon the spread of *phylloxera*, though seriously proposed in France, looks a doubtful enterprise. Of the numerous and perplexing gall mites one at least, *Phyllerium vitis*, occurs on the leaves of the Vine; seldom visible on the upper surface, there are small warts or flat patches containing parties of mites invisible except magnified.—ENTOMOLOGIST.

NOTES FROM LILLESSEN.

THE gardens connected with Lillesden House, Hawkhurst, Kent, are always worthy of a visit; at any rate, whenever I call on my friend Mr. Channing I invariably derive much pleasure during the time well spent with him. My last visit occurring in midwinter, the principal attractions were the plant houses, and notably the grand conservatory adjoining the mansion. This fine structure is nearly 100 feet long and 30 feet wide, and contains many valuable flowering and fine-foliaged plants, as well as a capital assortment of climbers and wall plants. The Camellias are very well managed, numerous large handsome bushes of the best varieties being dotted about the large centre beds. They are planted out, and a free use of the knife keeps them in good shape. One large specimen against a high end wall covered a space fully 12 feet each way, and had expanded hundreds of fine blooms, yet this was rooting in quite a narrow border. *Lasiandra macrantha*, a very showy greenhouse plant not often met with, also covers a great amount of wall space. It flowers abundantly during the late summer and autumn months, and if cut back freely flowers again in the winter. When I saw the plant at Lillesden it was flowering beautifully. *Luculia gratissima* planted in a narrow peaty border and trained up a low back wall and on to the roof was at its best, and very effective it was. Numerous plants in small pots were also flowering freely, each having about six large trusses.

Both the red and the white varieties of *Lapageria* are in the best possible condition. The red variety is planted in a narrow border against a cool back wall, and trained from this on to the roof. Alba is established in a large slate tub, and is a very fine plant, plenty of the growths attaining a length of 8 yards. A quantity of seed has been saved from this plant, and some of this sown in heat as soon as ripe germinated in six weeks, the seedlings, when I saw them, being about 2 inches high. *Lapagerias* usually thrive best in confined borders or in tubs, a rough peaty compost, good drainage, and abundance of water being their other principal requirements. *Habrothamnus elegans*, of which they appear to possess a superior form at Lillesden, is particularly well adapted for covering pillars. It does best planted out, and yields abundance of bright clusters of bloom during the dullest part of the year. Mr. Channing strongly recommends *Stigmaphyllon ciliatum* as a greenhouse or conservatory climber, and it does remarkably well at Lillesden. It flowers most abundantly during the summer and autumn months, and if cut back and an intermediate temperature maintained, it would flower again through the winter. The Hybrid *Rhododendrons* are also

grown against the low wall previously mentioned, and very useful and ornamental they prove. *R. jasminiflorum* and the *R. Veitchii* are sorts preferred, and these grow vigorously with only a narrow peaty border to root in.

Among the numerous well grown Ferns the most noteworthy were *Lomaria zamkefolia*, which would be good for exhibition; *Gleichenia Spelunca*, to which the same remark applies; *Pteris straminea*, a free-growing useful Fern; *Cibotium regale*, a noble Tree Fern; *Adiantum Williamsi*, of free handsome growth, good for exhibition; *Adiantum cuneatum grandiceps*, a very graceful crested variety, beautiful either in baskets or pots, and easily raised from spores; *Osmunda palustris*, very serviceable; and *Lastrea Richardsi multifida*, a nearly hardy crested variety. All the foregoing succeed in a greenhouse or conservatory temperature. Of the Palms grown in this conservatory the most effective is *Kentia Fosteriana*, this, in my estimation, being one of the very best that can be named either for conservatory or house decoration, and "takes" well in the exhibition tent. A great variety of flowering plants are grown in pots; but for the conservatory during the winter none are found to surpass the *Cypripedium insigne*, and of this there is a large stock at Lillesden. Some of the strongest pieces had about fifty expanded blooms, and these remain fresh in a cool house for many weeks. After they have done flowering they are placed in a warm greenhouse to form fresh growth, plenty of light and air being given subsequently. This treatment never fails to induce free flowering.

Considering the amount of supply such a large conservatory requires there are scarcely enough forcing and plant houses available, and it is only by good management that the supply of flowering plants can be maintained. Large numbers of *Salvias*, *Eupatoriums*, *Arums*, *Roses*, *Tritomas*, and various deciduous and other shrubs are planted out during the summer and potted for the winter and spring, the vineries largely assisting in bringing them into bloom. In the plant stove, in addition to the *Gardenias*, *Bouvardias*, *Crotons*, *Dracenas*, and other useful plants, there are also numerous good Orchids, a quantity of *Lælia anceps* being most noticeable. The good old *Dendrobium nobile* is extensively grown, and there is a fine lot of *Cælogyne cristata*. The latter are principally in pans, some of these having as many as forty spikes of blooms developing. During the summer they are kept in a cool and rather shady greenhouse, where they seem especially happy in company with various *Odontoglossums* and other cool house Orchids, batches of them being introduced into heat in October, these flowering in February and onwards.

Eucharis grandiflora and the smaller-flowering *E. candida* and *E. Sunderi*, are well and extensively grown, and nowhere else have I seen such a fine lot of *Paneratium fragrans*. Many of the bulbs are like large Onions, and must throw up grand spikes of bloom. They are not actually dried off during the winter, but only kept rather dry at the roots. What potting is necessary is usually done when there is a good heat in the vineries, this just suiting these *Amaryllis*, *Eucharises*, and other bulbous-rooted plants that are to be brought into flower or assisted to form fresh roots.

This brief notice by no means exhausts the list of plants cultivated under glass at Lillesden; but enough has been said to show that Mr. Channing keeps pace with the times, and those probably who may feel disposed to visit Lillesden during the summer and autumn will perhaps admit that he is rather ahead of the times, both with regard to the grand collection of herbaceous plants, and the carefully named and well-cultivated collections of Apples and Pears under his charge.—VISITOR.

NEW PLANTS OF 1886.

(Continued from page 277.)

Inf., Inflorescence.—*L.*, Leaves.—*Fl.*, Flowers.—*Fr.*, Fruit.—*H.*, Hardy.—*H.H.*, Half hardy.—*G.*, Greenhouse.—*S.*, Stove.—*Per.*, Perennial.—*Shr.*, Shrub.—*In.*, Inches.—*Lin.*, Line = One-twelfth of an inch.—*Fl.*, Foot or Feet.—*Diam.*, Diameter.—*Pet.*, Petals.—*Sep.*, Sepals.

N.B.—Unless specified, all Orchids may be considered to be stove epiphytes.

PANDANUS KERCHOVEI (*Ill. H.*, pl. 600; *Cat. C. C. d'Hort.*, p. 10.) Pandanaceæ. S. An exceedingly beautiful Pandanus, with long and very narrow bright green l., armed with whitish spines. Admiralty Isles.

PAPAVER PAVONINUM (*G. C. xxvi.*, p. 328 f. 67). Papaveraceæ. H. annual. A beautiful Poppy of dwarf habit, being about 1 ft. high, and very free flowering. L. bipinnatisect. Buds two-horned, one horn on each sep., by which character it is well marked. Fl. 3-4 in. across, brilliant scarlet, marked near the base with a zone of glossy black. Afghanistan and Turkestan.

PAPHIA RANDI (*L.*, pl. 30). Orchidæ. A striking Orchid, allied to *P. cristata*, with ellipsoid bulbs an inch long, lanceolate acute; l. 3-4 in. long, and a peduncle bearing two fl., 2½ in. in expanse. Sep. and pet. lanceolate-acuminate, purple-red, transversely barred at the base, and longitudinally striped along the margins with white. The cristate lip marked with the same colours. Syn., *P. cristata*, var. *Randi*.

PASSIFLORA VIOLACEA (*R. H.* 1835, p. 468, with plate). Passifloraceæ. G. or S. climber. A beautiful species with 3-lobed l., large oblique y semi-cordate stipules, and long peduncled fl. 3 in. in diam. Sep. and pet. oblong obtuse, pale l. lac; outer coronal filaments blue in the middle, white at the base and tips; the inner coronal filaments shorter, violet. Brazil.

PESCAIOREA RUCKERIANA (*G. C. xxiv.*, p. 424). Orchidæ. Much in the way of *P. Dayana*, with twisting undulate acute sep. and pet., which are white with a large light purple area near the green apex. The lip appears triangular, being revolute on each side and rolled underneath at the top. It is purple with a white callus, and some yellow at the base of the side lobes.

PHACELIA PARRYI (*B. M.*, t. 6342; *Gf. t.* 1207; *R. H.*, 1885, p. 557) Hydrophyllacæ. H. A beautiful annual herb, clothed with viscid hairs. L. 1-4 in. long ovate, coarsely toothed, petiole c. F. in elongating, terminal, scorpioid racemes. Corolla 1 in. in diam., campanulate-rotate, shortly 5-lobed, violet, with five yellowish spots at the throat of the short tube. Filaments hairy. California.

PHALÆNOPSIS SCHILLERIANA, var. *SPLENDENS* (*R. H.*, 1886, p. 396 with plate). Orchidæ. A charming variety with handsome rose-coloured fl., washed with darker, the side lobes of lip white with purple spots and washed with rosy. Philippines.

PHILODENDRON ANDREANUM (*R. H.*, 1836, p. 16, with plate). Araceæ. S. A fine Aroid of climbing habit, with ornamental foliage. The pendulous l. are 2-3 ft. long by 10 in. broad, elongate-lanceolate acute, dark shining green with coppery reflexions. Columbia.

PHLOX DRUMMONDI var. *FLORE PLENO* (*Gf.*, 1836, p. 404, f. 50). Polmoniaceæ. H. A pretty double-flowered form of this charming annual. Garden variety.

PHRYNIUM VARIEGATUM (*Ill. H.*, pl. 606). Scitamineæ. S. per. A beautiful foliage plant about 1 ft. high, with erect whitish petioles striate with green, and oblong acute l., 5-7 in. long, white, irregularly banded with green. Fl. unknown. Malacca (?).

PICEA BREWERIANA (*G. C. xxv.*, p. 497 f. 93). Coniferae. H. tree, growing to 80-90 ft. high, somewhat resembling *P. excelsa*, with long drooping whip-like puberulous branchlets, 6-8 ft. long; l. 5-12 lines long, ½-1 line broad, rounded or slightly carinate above, stomatoso beneath on each side the prominent midrib, obtuse. Cones slender, 3 in. long, with thin entire scales. North California.

PICEA PARRYANA (*Gf.* 1836, p. 199). H. tree, intermediate between *P. alba* and *P. Engelmanni*, also allied to *P. pungens*, but the characters not definitely stated. Cones unknown. N.W. America.

PILUMNA NOBILIS (*L.*, pl. 59). Orchidæ. This is a synonym of *Trichopilia canoidea*, also known as *T. nobilis*, and *T. fragrans* var. *nobilis*.

PINANGA DECORA (*Cat. C. C. d'Hort.*, p. 8). Palmæ. S. A beautiful Palm with two-parted l. of a dark red colour, passing insensibly into a transparent glaucous green, clouded as in some *Dracenas*.

PINANGA SPECTABILIS (*Bull. Cat.*, p. 9). S. An ornamental Palm, with dark green l., mottled with light green, silvery beneath. The young l. are two-lobed, the older ones pinnate. East Indies.

PLEUROTHALLIS REGELIANA (*Gf.* 1836, p. 51). Orchidæ. Allied to *P. curva*, with a climbing branched stem, coriaceous oblong l., rounded at the base, and a recurved several-flowered raceme of slightly tomentose fl. Upper sep. ochraceous, connate sep. reddish; pet. whitish; lip rosy with a purple cushion at the base. Minas Geraes.

PLUMBAGO CAPENSIS var. *ALBA* (*Williams' Cat.*, p. 26). Plumbaginæ. G. shr. A useful variety with white fl.

PODOCARPUS VITIENSIS (*G. C. xxv.*, p. 464 f. 89). Coniferae. G. shr. or tree of ornamental character, with drooping graceful frond-like branches, thickly beset with small, distichous, ovate-lanceolate, acute, bright green l. Fl. and fr. unknown. Fiji.

POGONIA PULCHRELLA (*B. M.*, 6851). Orchidæ. S. terrestrial Orchid. Tuber sub-globose. L. solitary, close to the ground, roundish-cordate acute, of a fine bronzy green, purple beneath, hairy on both sides. Fl.-stem produced after the l., two-flowered. Sep. and pet. ¼ inch long, narrow lanceolate acute, dull yellow-ochre with three darker nerves; lip rosy with darker lines. Hong Kong.

POLYBOTRYA LECHLERIANA (*G. C. xxv.*, p. 394 and 400 f. 79-80). Filices. A handsome S. Fern, with creeping stem and large broadly deltoid ovate, acute, 4-pinnate fronds. Pinnæ oblong lanceolate, acuminate, overlapping. Pinnules almost sessile, oblong, acute, cut into blunt oblong pinnatifid pinnules. Peru, Ecuador.

POLYGONUM SPHEROSTACHYUM (*B. M.*, t. 6817). Polygonaceæ. H. per-herb of dwarf habit, allied to *P. affine*; very attractive, and suitable for rockwork. Stems 4-10 in. high. L. 3-5 inches long, linear-lanceolate acuminate, glaucous or pubescent beneath, stipular sheaths large. Fl. oblong, crimson, in dense cylindric-oblong or sub-globose heads. Himalaya

(To be continued.)

ROYAL BOTANIC SOCIETY.

APRIL 20TH.

FAVoured by bright sunny weather this Society held its second spring Show of the season on Wednesday last, both exhibits and visitors being numerous. There was more diversity in the groups shown in the corridor than usual, considerable taste being displayed by some of the exhibitors, the banks of Primroses, Cinerarias, stove and greenhouse plants, Daffodils, &c., having a beautiful effect.

New plants were not quite so abundant as on some previous occasions, but certificates were awarded for the following, several of which have been previously honoured at South Kensington. Botanical certificates for *Primula obtusifolia* Gammieana, a beautiful variety with deep purplish crimson flowers from Mr. J. Douglas. It was found in Sikkim at an elevation of 15,000 feet in a sunny position. *Pteris cretica* Mayi and *P. tremula* flaccida from Mr. H. B. May, and *Narcissus cyclamineus* from Messrs. Barr & Son. Floricultural certificates were awarded for *Auriculas* Montrose, Rev. C. Kingsley, and *Tiresias*, with *Amaryllis* *Hilda* from Mr. J. Douglas; *Cinerarias* *Eclipse*, *Royalty*, *Jubilee*, and *Ariel* from Mr. James, Woodside, Slough; *Amaryllis* *Edith Wynne* from Messrs. J. Veitch & Sons; *Amaryllis* *R. D. Blackmore* from Messrs. Paul & Son; *Rose* *The Puritan* from Messrs. W. Paul & Son, and *Cyclamen persicum* *majesticum* from Mr. Odell.

Azaleas contributed materially to the brightness of the Exhibition, both indica varieties and the hardy varieties of the mollis type, which were principally shown by Messrs. H. Lane & Son of Berkhamstead; *Rhododendrons* from the same firm constituting beautiful groups, and

scentred the first prize in each class. The best six greenhouse Azaleas were shown by Mr. H. Eason, gardener to B. Noakes, Esq., Hope Cottage, Highgate, Mr. G. Wheeler, St. John's Lodge Gardens, Regent's Park, following with very poor specimens, and Mr. R. Wells, Sydenham, was third with similar plants. In the nurserymen's class for six greenhouse Azaleas, Mr. C. Turner, Slough, was first with neat conical specimens, well flowered, of Madeleine, semi-double white; Roi d'Hollande, brilliant red; Madame Van Houtte, Comtesse de Flandres, Apollo, and Mrs. Turner.

Cinerarias were extremely bright, especially those from Mr. James, Woodside, Farnham Royal, Slough, who had his customary handsome plants, and was easily first, followed by Messrs. Douglas and C. J. Salter. Alpine plants from Messrs. Paul & Son and Mr. T. S. Ware, who were respectively first and second with choice collections of plants, well flowered. With twelve Show Auriculas Mr. J. Douglas, gardener to F. Whitbourn, Esq., Great Gearies, Ilford, won chief honours with strong plants of Sir Lancelot (eighteen pips), Rev. F. D. Horner (eleven pips), Heatherbell, Abbe Lizst, George Lightbody, Mrs. Douglas, Conservative (eight pips), Rev. C. Kingsley (eleven pips), Dr. Kidd (ten pips), Montrose (ten pips), Mrs. Moore, and a Green-edge Seedling. Mr. C. Turner, Slough, was second in this class, but first with twelve Alpine Auriculas, followed by Mr. J. Douglas and Messrs. Paul & Son, Cheshunt. Mr. Douglas also had the best twelve Polyanthus, Messrs. Paul & Son having the first prize collection of twelve hardy herbaceous plants, *Viola picturata*, *Primula Croussei plena*, and *Fritillaria aurea variegata* being the best. Mr. D. Phillips, Langley Broom, Slough, was the only exhibitor of nine Pelargoniums, gaining the first prize for well-flowered plants, Duchess of Edinburgh, Madame Thibaut, Rosetta, and Martial being the best.

Messrs. Paul & Son were first with nine forced Roses in pots, specimens 3 or 4 feet in diameter and well flowered, especially Madame de St. Joseph, Celine Forestier, Madame de Montehaveau, Marie Van Houtte, and Catherine Soupert. Mr. W. Rumsey was second with smaller but vigorous plants. Mr. J. Douglas was first with twelve Amaryllises, comprising several new varieties; Messrs. Paul & Son were second with brightly coloured flowers, but rather smaller than those in the first prize collection.

Miscellaneous collections and groups not for competition were very numerous, and of considerable merit as usual. Messrs. J. Veitch and Sons, Chelsea, sent a handsome group of Daffodils and Amaryllises. Amongst the former the Corbularias were very beautiful, especially as they were arranged with their own foliage. Mr. B. S. Williams, Upper Holloway, staged a magnificent group of stove and greenhouse plants, comprising numerous good Orchids, Azaleas, Crotons, Dracenas, Palms, Ericas, Boronias, Amaryllises, and Imantophyllums (small silver medal); Mr. C. Turner, Slough, sent a group of well grown tree Carnations in pots bearing large flowers (certificate). Messrs. Barr & Son, Covent Garden, had a very large group of Daffodils, Anemones, Chionodoxas, and choice hardy plants (large bronze medal). Mr. H. B. May, Upper Edmonton, had a group of Ferns in pots similar to that recently shown at Kensington, and very healthy (large bronze medal). Messrs. John Laing & Co., Forest Hill, showed a large and tasteful group of Orchids, Ferns, Palms, Anthuriums, Wistarias, &c., margined with Selaginellas and small Ferns.

Messrs. Paul & Son, Cheshunt, had an exceedingly good group of standard Roses in pots, remarkably well grown, and flowering beautifully. Both Tea and Hybrid Perpetual varieties were represented in about equal numbers (silver medal). Mr. W. Rumsey, Waltham Cross, staged a pretty group of standard and dwarf Roses in pots, margined with Adiantums (small silver medal).

A charming group of Primroses and Polyanthus was sent from Mr. Anthony Waterer, Knap Hall, Woking, most varied in colours from white to the richest crimson (small silver medal). Mr. T. S. Ware, Tottenham, contributed an extensive collection of Daffodils, representing a large number of varieties, including all the best in cultivation (large bronze medal). Mr. J. Chambers, Isleworth, had fine plants of Violet Victoria, double dark blue (certificate). Messrs. Collins, Bros., and Gabriel showed a group of Anemones and Narcissi, of many varieties (bronze medal). Messrs. Hugh Low & Co., Clapton, sent a box of *Odontoglossum crispum* varieties, including some fine forms, *Dendrobium Wardianum* Lowi, a very large-flowered variety, a bright-coloured *Dendrobium luteiflorum*, well-flowered plants of *Cypripedium calceolare* and *Lawrenceanum*, and a box of *Odontoglossum Rozli* varieties.



KITCHEN GARDEN.

SEAKALE.—This vegetable is easily propagated by dividing or cutting the old roots or from seed. If the roots which have been lifted for forcing, or any others, are cut into pieces 3 inches to 4 inches in length and planted they will soon produce leaves and roots, and form useful plants before the season is over. The crown pieces, as a matter of course, will do best, or at least they will be soonest in leaf, but it is

astonishing how soon the cut parts throw up foliage. They should be planted in good soil at once at a distance of 2 feet apart each way. Seakale seed is about the size of Peas, and the present is a good time to sow it. They should be sown in twos or threes at a distance of 1 foot apart, and this will allow part of them to become a permanent plantation, while the others can be lifted and planted elsewhere. A deep rich soil suits the young seedlings best, and when well treated in this way they will often supply produce for the table when twelve months old.

PEAS.—Too much attention cannot be given to this favourite summer vegetable. Our February-sown seed has produced capital rows, but later sowings are not pushing on so fast, as the soil has become very dry. Main crop varieties should now be sown everywhere, and as the seed sown now will produce plants which will bear in July and the hottest and driest time of the season, a little extra attention should be given to them. We have sown Peas in trenches in February; wet weather followed, and the whole of the wrinkled-seeded varieties perished. But there is no danger of this now, and from henceforth all Peas should be sown in trenches. These are formed as if for Celery, to the depth of 1 foot, and well manured before sowing. They prevent the plants suffering from drought, and are altogether highly in favour of producing tender sweet Peas, which are often difficult to get in excessively dry weather when surface-sowing is practised. As a rule, we try a score of new Peas every year, and our batch this year is larger than ever; but we do not sow these until now, as the best part of the year is always the proper period to test their qualities, and give all a fair chance.

BROAD BEANS.—Earth up those which are from 3 inches to 6 inches high. When the soil is well drawn up on each side it steadies the plants and prevents their being blown over. Sow more seed for a July supply. The heaviest soil in the garden will be found to grow the best Broad Beans.

TURNIPS.—We sowed Early Milan the second week in February. We lost sight of the soil in which they were in for some time in March as it was covered with snow, but immediately this melted the young Turnips appeared; but they have not made much progress since, and the seed we put in on April 1st has now produced plants that are as early and high as the February-sown ones. This ought to be noted as a hint to those who have sown early; the more so, as we believe Turnips sown in April will be ready first and prove the finest roots; but none of those hitherto sown will be long in "bolting" after the roots are formed, and a few rows should be sown once a fortnight from now until August, as this is the only way to secure tender roots throughout the hot dry summer weather. Sutton's Snowball and Veitch's Red Globe are two excellent summer varieties. Sow in rich soil, and thin the plants as soon as they are large enough.

SPINACH.—The whole of our winter Spinach perished in March, but the seed sown in the early part of that month has done well, and the young plants are now showing the rough leaf. They will be ready for the kitchen early in May, but the early plants soon run to seed, and if a constant supply is desired a sowing must be made every three weeks. We never thin any of our Spinach plants until they are large enough for use, then those drawn up are sent to the kitchen, and those which remain are allowed to grow until they seed, as it is only the side leaves which are taken.

SORREL.—This is not unlike Spinach in the leaves, and it is a good vegetable, as the cook we have at present converts it into "a dish" which is greatly relished by all who taste it. Of late we have been increasing our stock with the object of having more of it as a vegetable. It is a perennial, the roots remain in the ground quite sound year after year, and it is increased by lifting these, dividing them and replanting.

CAPSICUMS AND EGG PLANTS.—We know of one or two localities where the former are shown as a dish of vegetables, but the chief object of growing them is either to use the plants for decoration with their red and yellow fruit, or as season pickles. Egg Plants bear fruits that are excellent in the hands of those who know how to cook them. The Capsicums and these require the same culture. Sow the seed in a gentle heat, prick off the seedlings singly into small pots as soon as the plants are 4 inches high, grow them in a temperature of 65°, repeat when necessary, and they will begin to flower and fruit freely when about 1 foot high. Good plants may be grown in 6 inch and 8 inch pots. They root freely, require plenty of water, and must be frequently syringed, as they are very apt to become infested with thrips and green fly.

BROCCOLI.—Nothing is gained by sowing Broccoli seed too early. The present is a good time for sowing the main crops. Select a good piece of soil in the form of a long narrow bed, open drills across it at a distance of 9 inches or 10 inches apart, and about 2 inches deep; sow rather thinly, cover firmly, and the young plants will appear in eight or ten days. Do not allow the birds to destroy them, and they will all be in prime condition for planting out by the end of May or early in June.

SAVOYS.—As yet we have not sown any of these, as in some former years we have found our early April plants form heads in October and burst before midwinter, whereas they ought only to be becoming hard in November and remain sound until March, but to have plants of this character do not sow the seed until the end of April. They are treated in all respects like the Broccoli already noted. Green Globe and Webb's Little Wonder are two splendid Savoy, the Drumhead is too large and coarse.

KIDNEY BEANS.—Hitherto our remarks on these have been confined

to plants under glass, but we are now dealing with the first sowing in the open air. Many who have no glass to devote to them will be glad to make the first sowing; this may be done at once. Give them the most comfortable corner in the garden. Do not sow extensively, a few short rows of an early sort will be enough for this month. Open the drills to the depth of 3 inches, keep the rows 2 feet apart, and sow rather thickly, as if cold weather occurs some of the plants may perish. It is too early to sow Canadian Wonder, as it is more tender than *Ne Plus Ultra* or others of this type. In very favourable localities a short row of *Runner* seed may be put in, but the second week in May is early enough to begin with them in most districts.

FRUIT FORCING.

PINES.—Closing houses in which young plants are in course of preparation for fruiting at a high temperature causes soft, drawn, weakly growth, which should be carefully avoided by the employment of as little fire heat as practicable, husbanding the sun heat and maintaining a moderate moisture in the house, by which means robust growth, combined with sturdy habit, is secured. Sprinkling will be necessary occasionally, especially at closing time, but do not close at a high temperature, and syringe about twice a week. Employ no more artificial heat than is needed to maintain the temperature at 65° or 60° by night and 70° to 75° by day. Commence ventilating at 75°, gradually increasing with the temperature to 85°, keeping it by day from sun heat at 85°, 90°, or 95°, but with abundance of air. Keep the bottom heat steady at 85°, or between 80° and 90°. Examine the plants regularly, and when water is required apply it liberally. Weak liquid manure may be applied with advantage to plants swelling, but not ripening their fruit. If the plunging material settles down from the pots apply fresh to the surface to keep the pots from being acted on by the atmosphere prejudicially. In the case of large panes of glass and the sun very powerful a slight shade for an hour or two at midday will be of service, but with small squares of glass is not needful. As the fruit ripens both plant and fruit may be removed to a cooler house, which will permit its being kept sound for a lengthened period—longer at this time of year than any other. When the suckers of fruiting plants become large enough screw out the centres of those not required for stock; one, or at most two, suckers should only be retained to a plant.

FIGS.—To obtain well-ripened fruit it is necessary to ventilate very freely whenever the weather is favourable, admitting air constantly day and night, lessening the supply of water and atmospheric moisture when the fruit is fully ripening. When the fruit is swelling the trees can hardly have too much water, especially those in pots, also keeping the atmosphere moist by sprinkling the house and syringing the trees twice a day. Liquid manure should be given to trees carrying a heavy crop of fruit. Attend frequently to tying in, thinning, and stopping the shoots at the fourth or fifth leaf of such as are required to form spurs, pinching the laterals succeeding at the first or second leaf, avoiding overcrowding the shoots, which is fatal to good crops and fine fruit. No fruit tree is more benefited by the full rays of the sun than the Fig; any kind of shading, whether by other plants or too much of their own foliage, is injurious and must be strictly guarded against by pinching out the young growths in the later-started houses and thinning all the overcrowded shoots. The borders should have a mulching of half decomposed manure, and this, with copious waterings, will impart vigour to the trees. The night temperature, when the trees are in full leaf, should be maintained at 60° to 65°, and 70° by day, allowing it to rise to 80° or 85° from sun heat. The cuttings having been inserted some time ago as advised, and it being intended to grow them in pots for fruiting, they should be shifted into larger pots, so as to afford time for their forming good well ripened bushes before autumn. From the cutting pots they may be transferred to 6-inch pots, and as they get larger, which they will do rapidly, they may be transferred to 9-inch pots, and have a final shift into the fruiting pot—viz., 12-inch. Turfy loam, with an admixture of a sixth of old mortar rubbish, a sprinkling of half-inch bones, and a little decomposed manure, the whole well incorporated, will suit them admirably, employing plenty of drainage, as it is necessary that the water pass away freely.

MELONS.—The earliest plants, notwithstanding the adverse weather, are now swelling their fruits. Secure to them every ray of light by keeping the glass clean, and water liberally at the roots, providing plenty of atmospheric moisture. Avoid overcropping; it not only diminishes the size of the fruits, but is fatal to high quality, which is everything in a Melon. Apply liquid manure liberally when the fruit is swelling and nearly ripe, but avoid stimulating plants before they have set their fruit. When the fruit commences ripening lessened supplies of water will be needed; avoid, however, allowing the soil to get so dry as to affect the foliage prejudicially, and admit a little air constantly with lessened atmospheric moisture. While observing a drier condition of the atmosphere and roots when the fruit is setting, do not allow the foliage to flag; attend regularly to setting the fruit, and do not prune if possible during the setting period, but stop the growths as the flower upon each is fertilised. Maintain a night temperature of 70° to 75° by day, and 85° to 90° with sun heat, ventilating moderately, avoiding as much as possible sudden fluctuations of temperature.

Later plants, especially those in pits or frames, will now be showing fruits, and unless they are in abundance remove the first, for it is important that the female blossoms be nearly of one stage of growth, a condition that cannot always be secured; but there will be no difficulty with plenty of foliage in securing five or six female blossoms of simul-

taneous growth on each plant which should be fertilised. Maintain a good bottom heat, and maintain a dry condition in the atmosphere when the fruit is setting. After the fruits are set let them be placed on a piece of slate, and ultimately raised on a flower pot above the foliage. Continue to earth up the plants as they advance in growth to make new beds and to plant out, potting, and otherwise preparing for planting successive beds. Look out for canker at the collar, and prevent its spreading by rubbing quicklime into the affected parts.

CUCUMBERS.—Water abundantly in houses, and keep plenty of moisture in the atmosphere all day by frequent damping, syringing both ways about 3.30 P.M., closing at the same time. Shading may be necessary in the middle of the day for an hour or two in bright weather to prevent flagging, but with the roots healthy and abundant very little shading will be necessary. In watering plants in pits and frames do so sufficiently early to have the foliage dry before nightfall, maintaining a good bottom heat. Ventilate early and moderately, husbanding the sun heat by early closing, employing a thick night covering, as the nights are yet cold. Avoid overcrowding, keeping the shoots stopped to one joint beyond the fruit, removing bad leaves as they appear. Keep young plants near the glass. Wireworm is often troublesome; baits of Carrot, Turnip, or Potato cut into thick slices and pressed gently into the surface of the bed will attract them, the baits being examined every day and the wireworms destroyed. For woodlice place boiled Potatoes wrapped loosely in a little hay in flower pots, and stand the pots where the woodlice abound, examining them every day and destroying those secreted in the hay. A toad or two placed in a frame will soon destroy many woodlice. To secure straight fruits employ glass tubes.

PLANT HOUSES.

Abutilons.—Plants that are trained to cover walls or pillars in various houses may now be well pruned back if they are to be in good condition until next season at this time. When the plants are expected to bloom over a long period of time hard pruning should be resorted to. This, combined with a judicious system of thinning during the growing season, will insure a succession of bloom for at least eight or nine months of the year. If the roots are restricted in borders remove a good portion of the surface soil and top-dress them with equal parts of good loam and manure. A good batch of cuttings of dwarf free-flowering varieties may now be rooted singly in 2 or 3-inch pots, and afterwards transferred into 5 or 6-inch pots. These, if grown for a time in heat, will make valuable plants for the decoration of the conservatory during the summer months. Plants rooted some time ago may be transferred into the last size, and as soon as they commence flowering may be removed to the conservatory.

Habrothamnus elegans.—A very useful plant for covering walls and pillars; for the latter few equal it when trained 10 or 12 feet high, and then allowed to form a large head. Such plants that have done flowering should be cut hard back, for by this means only can they be kept clean and presentable. Those pruned now will before another autumn make shoots 6 or 7 feet in length, which will droop gracefully, and will flower from the axil of every leaf. The flowers of this plant during the winter are invaluable for the system of table decoration now in vogue. By lamplight the flowers have the appearance of coral, and are most striking on the white tablecloth.

Clematis indivisa lobata.—If not already done plants that have ceased flowering should be well pruned back, especially large established plants that would become crowded if the whole of last year's shoots were left. This plant flowers on the ripened wood of the current season's growth, therefore every endeavour must be made to produce abundance of growth, which after flowering may be thinned and pruned back. If the roots are restricted top-dress with rich soil and feed liberally with stimulants after they start into growth. Young plants that it may be necessary to extend need not be pruned.

Bignonia grandiflora.—This and other varieties that are used for furnishing the roof and pillars of the conservatory and greenhouse should be examined, and their shoots tied and arranged for the season. Prune all that flower from ripened wood, and train the branches thinly, so that light and air can penetrate freely to harden and ripen them. It is useless to plant Bignonias in houses densely shaded, for they will not flower. The wood must be thoroughly ripened if a profusion of bloom is expected. *B. venusta* and some others make capital evergreen pillar climbers for those houses that are heavily shaded.

Lapagerias.—These will now be growing freely and require abundance of water at their roots. If confined in small borders weak stimulants may be given every alternate time water is needed, clear soot water being very beneficial. Keep the shoots from the glass, but not tied in too tightly. They flower better, and present a more striking appearance when all the small growths are drawn below the wires on which the main branches are trained. This process somewhat arrests growth, and the shoots become firm and hard, and large racemes of bloom are the result. Young plants that are to be extended should have the whole of the shoots trained vertically or horizontally, according to the mode of training adopted. Keep the house in which these plants are grown cool and airy, for the ends of the shoots quickly discontinue growth when the atmosphere is close.

Taesonias and Acacias.—These, as well as other greenhouse climbers that have flowered, must be pruned and their growths regulated. If left for a season or two they become crowded, and light is excluded from the plants below. Arrange the main branches thinly, so that the roof will be evenly covered by the end of the season; but with well established plants of *Taesonias* and *Passifloras* the shoots require

attention at intervals of a month during the season. If the newly made growths are allowed to hang from the main shoots in large houses a very picturesque appearance is obtained when the plants are in flower.

Ivy-leaved Pelargoniums.—Few plants equal the double and semi-double forms as climbers for the sides of houses and pillars in light, open, exposed positions. It is useless to plant them in shady places, for they will grow but not flower; but when fully exposed to light and sunshine they yield a large profusion of delicate and beautiful flowers for cutting, either for home decoration or for packing during the London season. They have a more delicate appearance than Zonals.

Greenhouse Rhododendrons.—All that have started into growth must be repotted if they need more room at their roots. With good treatment several varieties grow rapidly provided they are carefully watered and repotted occasionally. During the season of growth they are benefited by a close, moist atmosphere, in which they root and grow freely. Stand the pots upon some moisture-holding material, and syringe freely amongst the pots to keep them moist. It is also necessary to shade them from bright sunshine. The fine silk-like roots of these plants are quickly destroyed if the soil is allowed to become dry. If any thrips appear wash the plants in a weak solution of tobacco water, or they will play sad havoc with the foliage after the plants are placed in warmer quarters. Pot these plants firmly in good peat with a liberal dash of sand added.

THE BEE-KEEPER.

NOTES ON BEES.

THICKNESS OF COMBS.

So far as the brood combs are concerned we need not trouble much about them. Probably before a hive was made the bees fixed the law that the distance from centre to centre shall be $1\frac{1}{2}$ inch, exactly what we find them in a state of nature at the present day, and any attempt on the part of the bee-keeper to alter that distance or turn the combs upside down is simply useless interference.

Bees do not adhere strictly to any fixed size in super combs, but swell them out according to circumstances and the weather, the latter and the number of bees being the chief controllers, and we find them varying in thickness sometimes from 1 to 6 inches. One super of the latter sort was exhibited by Mr. Templeton at Dumfries Show in 1878. The super was fully 12 inches in thickness, and two combs filled it from one side to the other. Notwithstanding these extremes I have found that when bees were numerous and left to their own devices during a honey glut the combs were as a rule about $1\frac{3}{4}$ inch in thickness, or about 2 inches apart from centre to centre. At that latter distance I have always had the most regular and evenly built combs, and with the use of guides or comb foundation can always cause the bees to make uniform combs with less likelihood of eggs being laid therein than when thinner. To obtain pretty and uniform combs I keep all as nearly as possible at a uniform distance of 2 inches from centre to centre as formerly. It is more profitable to have combs of that thickness than thinner, and apparently nearer the wishes of the bees.

When the late James Anderson of Dalry and myself took our bees at first to Arran, we, as well as our bees, discovered that it was a land rich in honey. Whatever errors I have committed I never committed that one of smothering my bees in transit, providing them always with extra room and ventilation above and below. Immediately the bees were set down and released they set to work in earnest, both in filling supers and extending their brood combs downwards, keeping strictly to the 2 inches above and the $1\frac{1}{2}$ beneath, never having any occasion to deviate from my original plan. But it was not so with Mr. Anderson, as he failed in providing his bees with breeding space below, and the bees finding themselves cramped disregarded the guides and made their combs, doubtless with the intention of breeding

therein, but the abundance of honey prevented that, consequently were filled with honey and sealed. We viewed this occurrence differently, Mr. Anderson holding that it was the abundance of honey that caused the bees to make their combs, and not on account of too little breeding space as I suggested. Subsequently he had his supers altered to nine bars instead of seven. I held to my original way, and neither my bees nor myself found any need for a change. The last time I spoke to Mr. Anderson on the subject he held to the nine bars, so we were both satisfied.

When honeycomb is thin there is more wax to be secreted by the bees and more for the consumer to contend with. When thick comb is cut more honey drips than when it is thin, but altogether I think the massive comb about 2 inches thick is the one that is most preferred. I have never seen any utensil suitable for placing honeycomb on the table. I think if such a thing were made it would meet with a ready sale. Such an article may be of crystal, metal, plain or ornamental, of silver or electroplated. It ought to have a rack to keep the comb on its edge, with a drainer beneath so that the loose honey would flow into a crystal dish, and so avoid smearing the whole comb, as it necessarily does when lying flat on a platter. If a utensil of that sort was introduced guests would have the option of drained or comb honey from the one utensil.

INTRODUCING BEES TO ARRAN.

It may interest some of your readers to learn that bees were first introduced to Arran within the past hundred years. About eighty or ninety years ago a Mr. W. Henderson, architect and contractor under the Duke Alexander of Hamilton and Brandon, observed there were no bees on the island, suggested that it seemed a good place for them, advised their introduction, and if I remember aright what Mr. Henderson told me, he sent or took over a hive or more about the beginning of the present century. Since that I was asked for a hive to restock the island as all the bees were dead. I did not trouble to satisfy myself whether that was correct or not, but I gave the party a hive for 1s. 6d., which in two years after were increased to upwards of fifty hives.

The island of Skye, too, where we hear of so much distress amongst its crofters, about eight years ago had but one hive of bees, but of enormous weight and dimensions as stated by its owner (an officer of the Excise) to me, and to whom I sent a second one for the purpose of crossing. From the glowing descriptions given me of the place and bees, I am of the opinion that some good might accrue to these crofters if they kept a few hives, and from the scope of land they possess poultry farming would be more remunerative than the few sheep and cattle they possess. I feel certain that the proper advice to be given to the indigent crofters upon this subject would not be misdirected, and might ultimately prove of more value than a reduction of rents, but they must be led and assisted by willing and experienced hands.

TIN CRATES.

While all the bee world seems excited about the future standard frame and section, and the originator of contrivances in connection with bee husbandry, I will describe the crates of tin I had seven years ago. Of all material for hive-making, metal of any sort I consider the worst; still, we are often disappointed and frequently surprised at the unexpected, and what could be more surprising to some than to see beautifully filled supers made wholly of tin? A tinsmith near me uses nothing but tin supers,

and they are as soon and well filled as his neighbours' wooden ones, and not so fragile as glass.

My tin crates were made to economise space and keep the comb free from smoke, dust, and vermin. They were of two kinds; the one sort were in three, and the other in one piece, with covers on lids, top, and bottom. They were made of stout tin. The sides were bent or kneed at the top, so that the end of the section stood a quarter of an inch free from the sides of the crate, and the under edge kneed half an inch in, so as to give the section a bearing of a quarter of an inch. The sections were made all one breadth of $1\frac{1}{4}$ inch, kept separate by strips of tin bent at the proper distances to keep the sections rigid and in their place. Two pieces of wood, one at each end, reduced the surface of tin and filled the space, when withdrawn allowed the sections to be easily lifted. When emptied of bees, and the lids put on and paper gammed around they were impervious to everything hurtful and light to be sent by rail. Paper pasted inside the back and front destroyed the conducting nature of the tin; but, even although it is left exposed, it is no worse than tin separators, which I never sized nor never will.

The crate covering the whole of the hive was made in the same fashion as the above, but was braced together by angled tin to support the sections at bottom and single tin at top. As the bees had access to every part of the crate, the outside ones only had the quarter-inch space at ends for bees to travel round, which causes them to complete their sections better than when the section is kept close to the crate.

ORIGIN OF FRAME HIVES AND SECTIONS IN ONE PIECE.

I think it quite within my province to give some evidence on the above. One says we get all our appliances from America, while others say the reverse. Who was the originator of making boxes all in one piece of wood? It is an old art in joinery. I have seen coffin sides made in one piece, and it is only a pity that one could not be filled with the whims of disturbers of the peace, and buried out of hearing.

Thirty-five years ago I made hundreds of octagon supers as well as quadrants for the octagon hive all of one piece, and have still the machine that made them and samples of the boxes beside me, which anyone may see. In 1857 the Germans had in this country frames made from one piece of wood, and in that same year both the French, Germans, and English exhibited moveable-comb hives at the International Show, while about the same date I could be seen manipulating my moveable-comb hives on board the steamer from Arran and doling out honeycomb to the astonished spectators, while in 1855 I put into a Buchanan Street Station warehouse in Glasgow some hundred pounds of honeycomb in frames of sectional supers, the first that appeared in Glasgow. I quite agree with the very sensible advice given by "Felix" not to squabble over who was the original contriver, but accept things as they are. Still, I have a strong desire to give information, as well as to give due credit to continental and American bee-keepers for what they are entitled to, but for nothing more.—A LANARKSHIRE BEE-KEEPER.

THE HONEY QUESTION AND THE BEE-KEEPERS' UNION.

DR. GEO. WALKER says, page 260, that he "thought the traditional schoolboy knew what gross profit meant, and the difference between it and net profit. . . . Net profit is the gross profit less the working expenses." If Dr. Walker will leave the "schoolboy" alone, and go and inquire of the first youth he can find who is in a mercantile counting house, he will learn that there are other items to be deducted besides

working expenses from the gross profits before the net profits can be got at. The aforesaid youth will tell him that "net profit" is the balance on the debit side in the profit and loss account.

Then he takes me to task for saying they made 15 per cent. gross profit, instead of 17 per cent. In his eagerness to prove me wrong he does not see that seventeen is greater than fifteen, while I named this latter as being an exorbitant rate of profit; but I am correct for all that, as it is the rule in all business houses to calculate their profits on the gross selling price and not on the buying price. By so doing they do not sound so large for one thing; then it is more correct. For instance, an article which costs 6d. and is sold for 1s. is called 50 per cent. profit—*vide* Dr. Walker it would be 100 per cent.

Then he grasps at the word "turnover." They bought £1000 worth of honey, and sold £700 worth at a profit over cost of £100, thus leaving at cost price £400 in stock; yet he says they only turned over £600. Here again his "business" is at fault. How could he buy £1000 worth of honey and pay for it, and not turn this sum over? This £400 worth he has in stock it seems he cannot sell. He may have to take £200 to get rid of it, yet it does not seem to have been valued except at cost price; if it had been, perhaps, the balance sheet would have looked worse.

I hinted that they only bought the finest samples of honey. He says this is not so, as they bought £200 worth of inferior honey, which they cannot re-sell, nor can they sell Heather or any dark coloured or strong flavoured honey, saying, "It is not the slightest use our trying to push the strong flavoured or dark honey if the grocers will not take it, and we cannot afford to throw away our shareholders' money." Here we see he denies the impeachment, then admits it, and sets up a plea of "extenuating circumstances;" but he also unconsciously shows that his company has failed to accomplish what it promised to do for the benefit of honey producers—viz., provide them with a ready money market for all their produce to the extent of its funds, and create a demand for British honey in particular; but instead of doing this, they are wasting their capital and energy in competing in price and appearance with foreign honey, as instead of appealing to the public to use their honey like Hoge does with his "Horehound Honey," they just have a traveller selling to grocers, who, of course, only buy what is in demand. Did Holloway sell his pills for less because others made pills? No, he caused a demand for them amongst the class who used them, and then dealers kept them in stock to supply that demand; and this is what the Bee-keepers' Union will do. In 1885 Dr. Walker said they would turn over their capital six times yearly; this would be a "turnover" (with £6000 capital subscribed) of £36,000, rather a slight difference between this and the fact. Even the Canadians could do more business in six weeks in a strange country than the company could do in twelve months in their own town, and not undersell them either.

A word about honey. If it is light coloured it is praised, if dark it is condemned; here prejudice or ignorance—chiefly ignorance—is the cause. I produce a honey which is a dark olive green colour, and my Clover honey is a pale straw colour, and all who can judge Clover honey say it is matchless. If I sold by looks only to strangers the Clover would always go, but if I first let them taste, then the dark would sell fifty times to one of Clover, and the buyers always afterwards associate the dark green colour with the honey they like.

Dr. Walker says he declines to do anything to help on the N. B. K. U. If I consider him in the relation of Director of the H. Co., it is quite natural and likely for him to do so, as no sensible person would think of sending his produce to the H. Co. for 6d. per lb., and have his name carefully taken off and replaced by the Company's labels if he could sell with his own name on through the Union for 1s. per lb.; but Dr. Walker is a member of the executive of the B. B. K. A. which is established to teach bee-keeping "as a means of bettering the condition of cottagers and of agricultural and other labouring classes," and how they propose to benefit them, except by getting them a good price for their honey, does not appear; yet this is the banner they have hoisted for thirteen years, and what has drawn support from the gentry and clergy. A little reflection should show Dr. Walker and his friends that any scheme calculated to put a greater price in the producer's pocket for his crop should be looked on with great favour, for good paying prices would increase the number of bee-keepers on the one hand, and those already keeping would largely increase their stocks on the other, subscribers to their funds would feel their money was doing some good, and the associations could continue to flourish. As a member of the B. B. K. A. we certainly expect Dr. Walker to give the Union all the moral support he can, as we shall create a demand for the members' honey, and, without advancing the price to the consumer, get a greater one for the producer. The H. Co. need not complain, as they can then deal in foreign honey, or even in bee-keepers' supplies to supply the extra demand.

I am afraid some are thinking the Bee-keepers' Union proposes receiving the members' produce at one centre, and then re-selling it. Oh no! we shall not do anything so foolish. We shall provide labels for him to put on himself, and if he cannot sell it himself at his own price, then he can send it to the fairs. These will be the talk for miles round, and will be visited by thousands of people, who will get a taste of pure honey, and will buy, perhaps, a pound or two. These will have the producer's name and address telling the buyer where to get more like the sample, and a caution against buying honey except it has the Union labels on. The producers will thus have constant and ready markets perhaps hundreds of miles away, and, except the first and the surplus

lots, he may never send to the fairs. The Parcel Post will carry it for him to the most remote places at a less cost than the gross profit made by the H. Co., and he will pocket the dealer's profits, which is 4d. to 6d. Personally, I may say the Union would neither get me a better price or a better market, as, being in a town of over 300,000 people, where I am well known, my honey all goes as fast as extracted—viz., 1s. per lb., extracted in buyers' own bottles.

You will see, Mr. Editor, that the Union is to be floated by the enclosed prospectus, a copy of which will be sent to any applicant who will forward an addressed and stamped half-penny wrapper to Mr. J. Hewitt, Cambridge Street, Sheffield.—A HALLAMSHIRE BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

Benjamin Field, F.R.B.S., Swan Place, Old Kent Road, London, S.E.—*Catalogue of Horticultural Soils, Manures, Sundries, and Pottery (illustrated).*

George Humphries, Kingston Langley, Chippenham.—*Catalogue of Dahlias and Bedding Plants.*

Henry Bennett, Pedigree Rose Nursery, Shepperton, Middlesex.—*List of New Roses for 1887.*

William Paul & Son, Waltham Cross, Herts.—*Catalogue of New Roses.*

Bruant, Poitiers, Vienne, France.—*General Spring Catalogue of Plants.*

Charles Turner, Royal Nurseries, Slough.—*Spring Catalogue of Soft-wooded, Stove, and Greenhouse Plants.*

Benjamin Field, 75A, Queen Victoria Street, London, E.C., and Old Kent Road.—*Catalogue of Garden Requisites.*



All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

LATE INQUIRIES.—It is necessary to again remind correspondents that letters arriving on WEDNESDAY MORNING cannot be answered in the "next issue, which is then far advanced for press.

Princess of Prussia Strawberry (W. M.).—Your letter has been forwarded to our correspondent.

Clematis coccinea (C. D.).—The plant should be grown in a very light position and not topped. It will flower much better when it reaches the glass roof than on the back wall, unless the position is unusually light.

Cattleya Warneri (A. B. C.).—Do not attempt to rest the plant now or you will injure both growths and flowers; rather encourage it as much as possible, as good treatment now will assist it materially. It may be the autumn-flowering *C. labiata* as you suppose, but that will be readily determined when its flowers expand.

Marechal Niel Rose (M. C. B.).—We should not imagine the air passing freely through the ridge of the roof would impair the maturation of the wood, but rather assist it in the summer and autumn, but sharp currents of air in spring often injure the young shoots. If the growths are shaded from the sun by the ridge you will act wisely by training them where they can receive as much sun as possible; then you may expect the wood to ripen.

Mulching Rose Beds (F. J.).—For light soil especially manure from a cow stable is as good as anything that can be applied, and you may apply it now if the Roses do not grow so strongly as you wish. What is "best" for one soil and condition of plants is not the "best" under all circumstances, and you neither state the nature of your soil nor the condition of your Roses. Dissolved bones are a little more active and a little less durable than bonemeal. They are best used as a top-dressing.

Planting Flower Beds (A. B. C.).—It has never been the rule for us to take the initiative in this matter, but only to examine methods of planting submitted, and to suggest any changes for consideration as possible improvements. But apart from this, no one can satisfactorily point out how certain beds should be filled without knowing their sizes and the number of plants of each kind at disposal. We shall much prefer your acting in accordance with our established rule. We may then perhaps help you, and shall be glad to do so if we can.

Frame Linings (H. M.).—"Linings" are additions of manure built all round hotbeds and up the sides of the frames for imparting additional heat, especially top heat. Some hotbeds are made 2 feet or so wider than

the frames, and then the linings are applied round the sides of the frames alone, not round the original bed on which they stand. The necessity for lining is indicated by the temperature in the frames. If in growing Cucumbers, for instance, the night temperature falls to 60°, sweet fermenting material should at once be packed round 2 feet wide or so to raise the heat about 5°.

Destroying Plantains (F. J. C.).—We have destroyed thousands of Plantains on lawns by dropping crude carbolic acid, also sulphuric acid, right into the hearts of the plants. We have seen the latter used and fail, the plants growing again; but when we supplied the acid to other plants on the same lawn the cure was complete. This showed that the acid in the former case was either too weak or not properly applied. We have dug up roots of Dandelions a week after the crowns were dressed with sulphuric acid, and found them burnt right down to the tips a foot below the surface. It is not sufficient to merely kill the leaves of the plants; the acid must enter the hearts quite in the centre.

Insects on Vines (C. C.).—You had better not use petroleum. Two or three not very strong fumigations on consecutive nights will not injure the Vines and will destroy aphides, syringing forcibly in the morning after the "smoking." It is much better and cheaper to fumigate lightly and occasionally to prevent insects than allow them to increase, and then have recourse to a strong volume of smoke, or to powerful insecticides for eradicating them. We never permit green fly to infest either Strawberries or Vines. You will see remarks on working a viney profitably in another column. Maidenhair Ferns grow well under Vines, and dark firm fronds of *Adiantum cuneatum* are bought extensively by florists. Your former letter did not reach us.

Fuchsia Leaves Crinkled (H. B.).—The leaves sent are not unusual. It chiefly arises from the plants being grown in too low a temperature, and in too moist and rich soil, which is not favourable to root action. The only remedy we know is to afford the plants a light position in a house with a temperature of 50° to 55° artificially, avoiding a saturated condition of the soil, increasing the supply of water as the plants increase in growth, thus giving evidence of free root action. It also arises from sudden depression of temperature, or from currents of cold and dry air following a dull and moist period. It seldom or never attacks plants grown in the open air. Sometimes the crinkling is a consequence of the attacks of nematoid worms, probably due to an excess of organic matter in the soil, and is common not only to Fuchsias, but Pelargoniums. It is advisable to cease propagating from such plants.

Marechal Niel Rose Petals Falling Prematurely (Idem).—The Rose is in capital condition, and has done well considering that it was kept in a glass shed until January, probably dry at the roots, and these perhaps frozen. The cause of the blooms not expanding is defective root action, and until that defect is rectified the hastening of the flowering in a minimum temperature of 55° is more likely to accelerate than arrest the evil. The plant requires to be brought into bloom by a slower process. Could you not turn the plant out into a border of good rich soil, in which it would be likely to succeed much better than in a pot? In some instances the buds do not expand through the house being kept unduly close and the air too moist, with a deficiency of light.

Hyacinth Stems Dislocated (W. R.).—We are quite unable to indicate the cause of the separation of flower heads from the centres of the plants. We do not imagine insects are the authors of the evil, nor do we think the flower stems have been purposely broken from the two plants before us, for the simple reason that though we have bisected them the lower part of the stems were not to be found. Were the flower heads taken from some other plants and put in those you sent? It is curious that "several dozens" of the plants in beds should be in the unfortunate condition indicated. The plants are more advanced than in beds near London, and almost appear as if they had been protected. There is the possibility that water from melted snow freezing hard in the centres of the plants some time ago may have so injured the stems that the flow of sap was arrested, and the shrivelling induced; but the curious part is we can find no vestige of the lower parts of the flower stems in the plants before us.

Propagating Euphorbia jacquiniæflora (G. F. B.).—This very useful plant is readily increased from cuttings. The plants after flowering should be kept dry, but not so as to cause the wood to shrivel, and be cut back to firm ripe wood. From this shoots will push when the plants are placed in gentle heat, as they should be in March, and when these are between 4 and 6 inches long they should be taken off with a heel, the base pared smooth and inserted about an inch apart around the sides of 5 or 6-inch pots, be placed in a gentle bottom heat and covered with a frame or bellglass, keeping them close, moist, and shaded from bright sun until rooted, as will be known by their growing freely; they must then be inured to the air of the house, and be potted singly and grown in a very light position. To prepare the cutting pots drain them with crocks one-third their depth, place a little cocoa-nut fibre over the drainage, and fill to within three-quarters of an inch of the rim with a compost of light loam, leaf soil, sand, and dust charcoal in equal parts, surfacing with half an inch of pure sand. Apply water through a fine rose, and an hour or two afterwards insert the cuttings, giving them a gentle watering. They should be inserted about a couple of inches deep.

Cesspool Contents (A New Subscriber).—The liquid of a cesspool connected with a dwelling and composed of the entire slops from the house, is very valuable for every description of plants, except those with fine hair-like roots, such as *Rhododendrons*, *Azaleas*, *Heaths*, &c., and is particularly desirable for Roses and all kinds of plants requiring support for enhancing their vigour. It may be applied undiluted to Roses established in beds, giving a supply early in May, in June, and again so soon as the flowering is over. There will not be any smell of consequence, as the soil is the best deodoriser. It should not be poured directly on the plants and stems, but in the spaces between them. For vegetables it may be poured between the rows or along the sides of rows of Peas, &c. If the contents of the tank be strong, which it is hardly likely to be from the varied source of supply, it should be diluted with water. That will, however, for the reason given, only occur when the tank is low and the contents become thick, then add water to the extent of six times the bulk of the sewage, stirring well. It

may safely be applied whenever, under ordinary circumstances, water would be required—once a week or oftener, according to the weather.

Cauliflowers Blind—Exhibiting Salads (Inquirer).—We have noticed the failing in Veitch's Autumn Giant Cauliflower, autumn-raised plants being especially liable to go blind. It is not satisfactorily accounted for. We always raise and prick out many more plants than are actually required in the first instance, and these are then available for transplanting with a bowl to where they may be needed to replace those that are blind. You should have stated the date of the show at which you intend to compete with a salad of four kinds. Supposing it be in August or thereabouts, you might have good Cos Lettuce, Tomatoes, Radishes, and either Cucumbers or Cress. Celery and Cucumbers are frequently well shown by cottagers, and these, in common with Tomatoes, may be included in collections of either salading or vegetables. Failing either of these Mustard would do for the fourth kind. Many beside yourself would be glad to know "how to get rid of black fly on frame Cucumbers?" This little pest, when well established on house-grown plants, is very difficult indeed to destroy, and according to our experience it is useless to make the attempt with frame Cucumbers. Fumigation with tobacco paper is both dangerous and useless, but tobacco powder well dusted over the under side of the leaves will check the insects somewhat. You will do well to make a fresh hotbed, and raise or procure fresh plants, as these would soon surpass those that are infested.

Growing Tobacco in Gardens (W. L. B.).—We are not aware that there is any prescribed limit as to the number of plants you may grow for fumigating purposes, but no one can occupy more than half a pole of ground with Tobacco without incurring a penalty except in conformity with the special regulations of the Government for extending the culture of the plant. Mr. E. J. Beale, F.L.S. (Messrs. James Carter & Co.) says in his excellent work on "English Tobacco Culture." "The following is a summary of the laws which prohibited the growth of Tobacco in this country fifty years since, and which, with the latter enactments under George III. and William IV., govern the existing prohibitions:—By Charles II., c. 34, no person shall plant any Tobacco on pain of forfeiting the same, or the value thereof, or 40s. for every rod or pole of ground planted with it (equivalent to a duty of £320 per acre); half to the King and half to him who sues. And besides the said penalty by 15 Charles II., c. 7, he shall moreover forfeit £10 for every rod or pole; one-third to the King, one-third to the poor, and one-third to him who sues. By 22 and 23 of Charles II., c. 26, the justices shall, a month before every sessions, issue their warrants to all high and petty constables to search what Tobacco is planted, cured, and made, and by whom; and to make presentment of such persons; which presentment shall be filed by the Clerk of the Peace in open sessions; such filing to be a sufficient conviction of the persons presented, unless such person having notice given him of such presentment, shall, at the next sessions, traverse the presentment, and find sureties for prosecuting and trying such traverse. And all constables, &c., shall, within fourteen days after warrant from two justices, pluck up, burn, consume, or tear in pieces, and utterly destroy all Tobacco, seed, plant, and leaf sowed or growing in any field or ground. And if any Tobacco shall be suffered to grow or be consumed in seed, plant, or leaf by the space of fourteen days after the receipt of such warrant by the constables or other officers, they shall for every offence forfeit 5s. for every rod, pole, or perch planted with Tobacco; half to the King and half to him who sues. Bnt, by the several Acts, nothing in them is to hinder planting Tobacco in gardens for physic or surgery, so that the quantity planted exceed not half a pole of ground. These penalties failing to stop the cultivation of the plant another Act was passed. By 15th Charles II., cap. vii., sections 15, 16, and 17, the tax of £320 was raised to £1600 per acre, and that exists to the present day."

Names of Fruits.—The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and surplus fruits beyond that number cannot be preserved. (J. D.).—2, Gipsy King; 3, Pigeon; 4, Cockle's Pippin; 5, Not known; 6, Golden Knob. (B. J.).—1, Golden Noble; 2, Yorkshire Greening. A little delay necessarily arises occasionally in naming specimens.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (S. H.).—Fuchsia splendens. It is not unusual for the flowers to drop off prematurely early in the season when the roots are less active than later, and the leaves and stems weaker through the necessity of keeping houses somewhat close in the spring. (Inquirer).—The plant is Fuchsia splendens which flowered in the gardens of the London Horticultural Society in 1842, from seed sent by the collector Hartweg. It was found at an elevation of 10,000 feet, and it was then thought likely to prove one of the hardiest.

Sections and Crates (H. G.).—You wish to know if half-pound sections can be used in racks or crates that 1-lb. ones are used in. If the half-pound sections are of the same height as the larger ones we see nothing to prevent their being fitted into them, provided they fill the rack properly. If not, then the space at the ends had better be filled by a division board. To work bees and hives for half-pound sections is certainly not the best means to obtain the largest quantity of honey; but if it is absolutely necessary, then we advise crates to be made, either in one to cover the whole hive, or in two divisions, and have frames to fit into these, each frame to hold two sections in depth. The frames in the under crate should clear the crown of the hive at least a quarter of an inch; but in the case of tiering, the upper frames should lie close upon the tops of the under crate of sections. This plan, however, is liable to crush bees when manipulated before the sections are full; it has no other disadvantage, but a great advantage when tiered neatly, by the bees filling the whole sections in a continuous mass, especially so if the frames are free from the side wall of crate a quarter of an inch. For half-pound sections we would make the frames of strong

hoop-iron, having distance guides riveted on them, and small holes punched or drilled on the bottom and end of the frames, so that the sections could be fastened by pins or tacks. Those in the centre of the upper row we would keep in place by tin guides bent so as to grip the top and bottom sections, keeping all rigid. If some plan like that is followed, many bees get access to the sections, which is much better than when the compartments are small, and the whole of the sections will be completely filled. We exhibited frames of this sort in 1884, and all who saw them were pleased with them, only the sections were 1 lb. ones. When the bees have a roadway round the ends of the frames the bees fill the sections better. Iron takes up less room, is stronger, and during summer is not objectionable in supers, and is cheaper than wood for the purpose.

COVENT GARDEN MARKET.—APRIL 20TH.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples 1/2 sieve	2	0 to 5	Melon each	0	0 to 0
" Nova Scotia and			Oranges 100	6	0 to 12
Canada, per barrel	10	0	Peaches per doz.	0	0 to 0
Cherries 1/2 sieve	0	0 to 0	Pears dozen	1	0 to 2
Cobs 100 lb.	60	0 to 65	Pine Apples English .. lb.	1	6 to 2
Figs dozen	0	0 to 0	Plums 1/2 sieve	1	0 to 2
Grapes lb.	4	0 to 8	St. Michael Pines .. each	2	0 to 5
Lemons case	10	0 to 15	Strawberries per lb.	8	0 to 12

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes dozen	1	0 to 0	Lettuce dozen	1	0 to 1
Asparagus bundle	8	0 to 12	Mushrooms punnet	0	6 to 1
Beans, Kidney per lb.	2	0 to 2	Mustard and Cress punnet	0	2 to 0
Beet, Red dozen	1	0 to 2	Onions bunch	0	3 to 0
Broccoli bundle	0	0 to 0	Parsley dozen bunches	2	0 to 3
Brussels Sprouts .. 1/2 sieve	2	0 to 2	Parsnips dozen	1	0 to 2
Cabbage dozen	1	6 to 0	Potatoes cwt.	4	0 to 5
Capicums 100	1	6 to 2	" Kidney cwt.	4	0 to 0
Carrots bunch	0	4 to 0	Rhubarb bundle	0	2 to 0
Cauliflowers dozen	3	0 to 4	Salsify bundle	1	0 to 1
Celery bundle	1	6 to 2	Scorzoneria bundle	1	6 to 0
Coleworts .. doz. bunches	2	0 to 4	Saukale per basket	1	6 to 0
Cucumbers each	0	4 to 0	Shallots lb.	0	3 to 0
Endive dozen	1	0 to 2	Spinach bushel	3	0 to 4
Heros bunch	0	2 to 0	Tomatoes lb.	1	0 to 2
Leeks bunch	0	3 to 0	Turnips bunch	0	4 to 0

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi dozen	9	0 to 18	Fuchsia dozen	9	0 to 12
Arbor vitae (golden) .. dozen	6	0 to 9	Genista dozen	8	0 to 12
" (common) dozen	6	0 to 12	Hyacinths per dozen	6	0 to 9
Azalea per dozen	18	0 to 36	Lilies Valley dozen	12	0 to 24
Begonias dozen	4	0 to 9	Marguerite Daisy .. dozen	6	0 to 12
Cineraria per dozen	6	0 to 10	Mignonette dozen	6	0 to 9
Cyclamen dozen	12	0 to 24	Myrtles dozen	6	0 to 12
Dracena terminalis, .. dozen	30	0 to 60	Palms, in var. each	2	6 to 21
" viridis dozen	12	0 to 24	Pelargoniums dozen	12	0 to 24
Erica, various dozen	18	0 to 42	" scarlet dozen	6	0 to 9
Euonymus, in var. .. dozen	6	0 to 18	Primula sisensis .. per doz.	4	0 to 6
Evergreens, in var. .. dozen	6	0 to 24	Solanums per doz.	9	0 to 12
Ferns, in variety dozen	4	0 to 18	Spiraea dozen	9	0 to 12
Ficus elastica each	1	6 to 7	Tulips per doz. pots	6	0 to 9
Foliage Plants, var. .. each	2	0 to 10			

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Abutilons 12 bunches	2	0 to 4	Mignonette 12 bunches	4	0 to 6
Anna Lilies 12 blooms	4	0 to 6	Narciss 12 bunches	3	0 to 9
Azalea 12 sprays	0	6 to 1	" White, English, bunch	0	0 to 0
Bouvardias per bunch	0	6 to 1	Pelargoniums, per 12 trusses	0	9 to 1
Camellias blooms	1	6 to 4	" scarlet, 12 trusses	0	4 to 6
Carnations 12 blooms	1	0 to 3	Parm Violets (French)	2	6 to 3
" 12 bunches	0	0 to 0	Poinsettia 12 blooms	0	0 to 6
Chrysanthemums 12 bchs.	0	0 to 0	Primroses 12 bunches	0	6 to 8
" 12 blooms	0	0 to 0	" white 12 bunches	0	9 to 1
Cornflower 12 bunches	0	0 to 0	Primula (single) .. per bunch	0	4 to 0
Cyclamen 12 blooms	0	4 to 9	" (double) .. per bunch	0	9 to 1
Daffodils, various, dz. bchs	2	0 to 6	Roses 12 bunches	0	0 to 0
Eucharis per dozen	4	0 to 6	" (indoor), per dozen	1	0 to 2
Gardenias 12 blooms	1	6 to 3	" Tea dozen	2	0 to 4
Hyacinths, Roman, 12 sprays	0	0 to 0	" red (French) .. dozen	1	6 to 2
" 12 sprays	0	0 to 0	Stephanotis 12 sprays	4	0 to 6
Lapageria, white, 12 blooms	0	0 to 0	Tropeolum 12 bunches	1	6 to 2
Lilium longiflorum, 12 blms.	4	0 to 6	Tuberose 12 blooms	1	6 to 3
Lilac (white), French, bunch	4	0 to 7	Tulips doz. blooms	0	6 to 1
Lily of the Valley, 12 sprays	0	9 to 1	Violets 12 bunches	0	4 to 9
Marguerites 12 bunches	2	0 to 6	" Czar, French, per bunch	0	9 to 1



GRASS FARMING.

SUCCESS full and ample has attended the efforts of farmers in the western counties in the cultivation of fodder crops for many years past, and it may be said that the high average of annual rainfall in that part of the

country is more favourable to such crops than elsewhere, yet if "Severn-side" farmers or those in the south-west were questioned, it is more than probable that they would have a doleful tale to tell of many a hay crop spoilt by untimely showers—aye, and many a corn crop too, of which so much of the grain had sprouted in field-ricks that an inferior sample and low price was unavoidable. In the great corn growing districts of the eastern counties so little attention has hitherto been given to fodder crops that with the exception of red and white Clover and Sainfoin layers, very little land has been devoted to this important branch of farming. It is true enough that a grass meadow or two may be found upon most farms, but a glance at them, especially at this season of the year, tells the experienced eye that no systematic culture has been brought to bear upon them, and that apart from the manuring by cattle or sheep which may have been grazed upon them, no annual dressing of manure has been applied. Nor is the general faulty practice confined to this want of manure, equally bad if not worse is the foul condition of pasture. Thistles, Nettles, Rushes, Sedges, Ononis, Brambles, Docks, frequently infest the pasture so badly as to cause a serious deterioration in the quality of the hay.

Now we may premise that pasture is as worthy of systematic culture as arable land simply because it is as profitable. This is, to say the least, so much within bounds having regard to the very low price of corn now, that we may go farther and assert that it is more profitable than corn. Let us particularise a little. Experience has shown that under high culture a crop of at least 3 tons of hay per acre may be had, which at £4 a ton gives a return of £12 an acre. That this sum is well within bounds will be owned when we point to recent quotations for best meadow hay of from £4 8s. to £4 15s., and we may remind our readers that in seasons of scarcity we have realised £7 per ton for meadow hay. It is true that we have now to contend with importations of hay, especially in the metropolitan markets, but the very fact of hay being imported should act as an incentive to increased home production, for hay even when compressed is so bulky that the cost of carriage must prove a serious matter to foreign producers.

In a comparison of prices of hay with corn it must not be forgotten that the cost of grass farming is infinitely below that of corn. Take, for example, an old pasture foul with weeds and poverty stricken. It may be that drainage may be necessary as a preliminary step to improvement, but then if this be well done the cost may be spread over so many years that it sinks to a minimum. Of foul growth, Thistles, Nettles, Docks, Brambles, and Ononis, better known perhaps by its popular name of Rest-harrow, must be eradicated. Rushes and coarse herbage soon disappear after efficient drainage. As an example of this we may mention a peat bog which we had drained several years ago. Before the draining the common Rush (*Juncus conglomeratus*) and coarse grasses rendered the bog practically worthless; afterwards the Rushes and coarse herbage disappeared and were replaced by sweet wholesome herbage, of which both sheep and cattle were very fond. Or to take another example. We once ran a wire fence through a poor foul pasture, half being taken for hay and half being left for grazing. The hay pasture was drained, cleaned, and dressed annually with manure; the other had to be left to take its chance under the grazing of cows and sheep. The superior condition of the cultivated portion of the pasture was so remarkable that we, as a matter of duty, called the owner's

attention to it, yet strange to say we were unable to induce him to do more for the other part than to fold sheep upon some part of it in winter.

Sheep folding is unquestionably an economical and sure way of imparting fertility to pasture, but to be efficient it must be done annually. Simply grazing with sheep without folds will not answer; there must be systematic folding, using small folds and keeping the sheep in each fold for twenty-four hours. When sheep are not so used we apply our annual dressing in February of nitrogen, potash, and phosphorus in the form of home-mixed chemical manures in quantities and sorts as we have so frequently enumerated. Nothing can be more simple, nothing more sure. We are free to acknowledge that to procure and mix chemical manures involves much time and care, but then the reward is fully proportionate, and the simple fact of being assured that we are using a genuine article is of itself highly satisfactory.

WORK ON THE HOME FARM.

Since writing our last note we have had many long journeys by road and rail, and have seen more Couch Grass fires burning than we ever saw before in a week. Never was there a more favourable winter and spring for cleaning foul land, and glad are we to see full advantage taken of such an opportunity. We saw one field in particular where Couch roots were so abundant that men were collecting them into rows with rakes, just as is done with hay. What a loss of fertility is involved by letting land become so foul! Wherever Charlock was visible among corn harrows have been used to destroy as much of it as possible before sowing Clover and other seeds for layers. The Mangold sowing is over on many farms, and with the seed in the land we shall now eagerly welcome rain and warm weather. We like to get the hoeing and singling of the Mangolds out of hand before the haymaking begins, for if it is not so managed the Mangolds must often be left till the bulk of the hay crop is got together, and then the field may have become a thicket of weeds mingled with the Mangolds, which are thus robbed of much of the food with which we have been at the expense and pains of providing for them. Winter Tares are a good and vigorous plant, but growth has been so slow that we are doubtful if this crop will be ready for the sheep when the Rye is done. Our Rye Grass will be required to finish our fattening sheep for market, and we shall probably fold the ewes and lambs upon a field of Sainfoin, which is more forward in growth than the Tares. It was with regret that we saw a flock of sheep upon a Clover layer in Cambridgeshire recently, for the Clover was not forward enough in growth to afford much food. With an early strong growth of Clover folding with sheep answers well if the second growth is intended for seed, as we are then able to harvest the seed before autumnal rain sets in. We have no doubt that many a farmer is at a loss for green food for the flock, owing to the adverse influence of the late cold spring. The lesson is a severe one. Well indeed will it be if it induce more general attention now to making due provision for another season. Poor pasture is almost bare of growth, but fertile pasture has a nice forward growth notwithstanding the cold weather, and it is most useful for the flock. Dairy cows have not been out upon it yet, as they get enough Rye to impart freshness to the milk and colour and flavour to the butter.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.


Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.						Rain
	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.				
		Dry.	Wet.			Max.	Min.	In sun.	On grass.			
1887.												
April.												
Sunday	10	30.248	40.3	33.1	N.E.	42.2	53.4	33.2	84.6	22.3	—	
Monday	11	30.161	43.7	42.0	N.	41.9	60.7	33.6	103.0	39.3	—	
Tuesday	12	30.027	43.9	42.3	N.	43.1	66.3	36.2	102.7	33.0	—	
Wednesday ..	13	30.094	44.1	33.6	N.E.	44.2	47.6	37.9	61.4	37.1	—	
Thursday ..	14	30.249	33.8	33.8	N.	43.2	46.8	32.2	97.2	27.4	—	
Friday	15	30.440	40.7	37.2	N.	42.3	53.1	30.6	98.3	25.3	—	
Saturday	16	30.558	44.6	38.8	N.E.	42.8	52.1	38.3	98.2	29.6	—	
		30.254	41.7	39.0		42.8	54.3	35.3	92.2	31.1	—	

REMARKS

10th.—Cloudy morning; fine bright afternoon and evening.
 11th.—Fine, bright, and warm.
 12th.—A delightful spring day.
 13th.—Fine and fairly bright, but cold.
 14th.—Fine, cold, and generally bright, with short sharp showers of snow and hail.
 15th.—Fine, though with dark clouds; very bright at times.
 16th.—A bright warm day.

A week of typical spring weather and very dry. Fine days with variable temperature; cold nights. Mean temperature about a degree below the average, and somewhat above that of the preceding week.—G. J. SYMONS.



COMING EVENTS

28	TH	Royal Society at 4.30 P.M.
29	F	
30	S	
1	SUN	3RD SUNDAY AFTER EASTER.
2	M	
3	TU	Sale of Orchids at Downside (two days).
4	W	Society of Arts at 8 P.M.

AURICULAS, PRIMULAS, AND PRIMROSES.

THE Exhibition of the National Auricula Society indicates the arrival of the season when Auriculas and Primulas again occupy our attention for a time, the Primroses we have had with us for some weeks, though later and less abundant than usual. Amongst the spring flowers these are always most welcome, and there is ample evidence that their admirers are steadily increasing in numbers, not only in the south but in the north, which has always been a stronghold of hardy florists' flowers. The National Society has its southern and northern sections, each holding an annual show in England, and now the Scottish Primula and Auricula Society has undertaken to provide the "Land o' Cakes" with exhibitions of a similar character, the first of which is to be held in Edinburgh on May 4th this year. As regards the southern portion of the kingdom, perhaps the increasing favour is shown more towards the Alpine and border Auriculas, together with the numerous hardy Primulas, than towards the show Auriculas, the delight of true florists for so many years. Beautiful they all are, but the refined attractions of exhibition Auriculas do not take the popular attention so rapidly as the varieties which can be grown in beds and borders with little trouble. Those, however, who commence with these may gradually advance in their critical knowledge of the qualities and characters of the plants, and if they should happen to have an enthusiastic neighbour of the old florist's school they will probably soon enter the ranks of the initiated and discuss eagerly the respective merits of tube, paste, body-colour, and edge in the exhibition varieties and novelties.

What may be termed the garden and the exhibition types of Auriculas must always be kept distinct, and the better the line of demarcation is observed the more it will be in the interest of growers of each group. The delicate flowers of the show varieties have a sorry appearance out of doors, and except for conservatory decoration the others seem out of place under glass, or at least they fail to satisfy those who are familiar with the finer points of the florist's Auriculas. To maintain the latter in their position at the head of the family no efforts should be spared to preserve, or, if possible, to improve on the types transmitted to us by the older growers, to avoid degeneracy by an approach to coarseness, and to keep the Auricula as a model of refinement. It is to be feared that Auricula raisers do not always bear this in mind, and that those who award certificates do not pay sufficient attention to the true position of the varieties they honour. Critical judges like the Revs. F. D. Horner and H. H.

D'Ombraïn, Mr. J. Douglas, and Mr. B. Simon'te regard these matters in the right light, and very carefully weigh the respective qualities of varieties submitted to them, but there seems to be a growing inclination with some to disregard points which at one time were considered essential to a first-rate Auricula. An even proportion of tube, paste, body colour, and edge, clear definition of the respective parts, and bright fresh colours have long constituted the leading characters of a show Auricula, and in the grey-edge varieties the perfection of the ideal has been almost obtained in such forms as Headly's George Lightbody, which can be taken as a standard. We do not know any novelty of recent years that can equal this when at its best. More notable additions have been made to the green-edge class, but the white-edge varieties, always scarce, seem to still lack the best qualities of the others. The selfs are beautiful and most welcome for their rich colours, but the tendency to coarseness is frequently apparent, as is also the case with the Alpines, though in a less marked degree.

It is not uncommon to find genuine admirers of flowers objecting to the rigid rules laid down by florists as fantastic, and denying that beauty is to be found in a series of concentric circles such as might be struck with a pair of compasses. But they miss the point. All that can be done by cultivators is to develop the characters of a plant on the natural basis—that is, the primary qualities of the species from which it is derived. This is all that has been done or attempted in the case of the Auricula, and by comparing the modern varieties with the original Primula Auricula and some other species which have been concerned in their production, it will be seen that the general plan of the flower, if it may be so termed, is unaltered. All that the florists have accomplished is to intensify their characters and to increase their diversity in certain directions. Indeed, this is what takes place with nearly all plants grown for the sake of their flowers, and which have been long under the care of horticulturists.

A valuable addition to the Auricula shows is afforded by the classes provided for species of Primulas, and this is a department that will no doubt greatly increase in interest. Many Primulas, apart from the useful *P. sinensis* varieties, are admirably adapted for culture in pots as conservatory or greenhouse plants, such as the graceful *P. Sieboldi* and its varied forms, the floriferous and almost continuous flowering *P. obconica*, which is one of the best introductions of recent years, the small but free and beautiful yellow *P. floribunda*, the brightly coloured *P. rosea*, and the pure white *P. viscosa nivea*. Then we have the Primroses of innumerable tints, for simple grace perhaps unsurpassed in the family, in all stages of transition from the Primrose of our hedgerow banks to the Polyanthus forms and the stately laced Polyanthus. How effectively Primroses can be displayed at an exhibition was shown last week at Regent's Park, where a beautiful bank was formed in the corridor, the plants being set in moss informally, as dells or mounds, not in parallel rows as most exhibitors seem to consider the correct mode. The variety of colours in these Primroses is astonishing, and no garden where hardy plants are prized should be without some beds devoted to them. In richness of tints they are unequalled; from pure white to the deepest crimson and purple, all the intermediate shades are represented.

Few attempts are made to form new groups of Primula varieties or hybrids. When *P. japonica* was introduced

it was thought that it might give rise to distinct type of garden forms, but in that respect it has not realised the expectations formed concerning it. Then *P. rosea* might have been regarded as the progenitor of a series of highly coloured varieties. The more recent *P. obconica* would appear to afford the hybridist some chance of success, and now the richly tinted *P. obtusifolia* Gammieana seems to give another chance to those desirous of improving existing or introducing fresh types. So many of the *Primula* family are readily intercrossed, and produce seed so freely, that experiments could be undertaken in several directions with every chance of success. The variety of *P. obtusifolia* shown by Mr. Douglas under the name of Gammieana is a charming plant, the flowers very neat in shape, of an intense crimson hue, a colour which also runs in the calyx and pedicels in a lessened degree. It is said to have been found in Sikkim, growing in sunny places at an elevation of 15,000 feet. The species is a native of the Himalayas, and is extremely variable, several forms having been already described, such as *Griffithi* and *Roylei*, which indicates the likelihood of its adaptability for crossing with other *Primulas*.—AN AMATEUR.

THE GARDENERS' ORPHAN FUND.

THE time has arrived for reporting the progress that has been made in furthering the establishment of this commendable scheme. It may be stated that it is not in conflict with any other institution, but is intended to supply an existing want. As has been previously intimated, forms have been posted to a number of gardeners affording them an opportunity for giving their adherence to the scheme, and stating the amount of support they are willing to give to it. The "returns," as placed before a meeting of the Committee at South Kensington on Tuesday last, showed the number to be 608, and of this number only 13 were refusals to accord support. The subscriptions promised are 277 of 5s. per annum, 82 of 10s., 15 of 20s., and 1 of 40s. Donations are promised from 300 persons of £284 17s. 6d., the total sum announced to the meeting being £430 19s. 6d.

Several of the forms sent out failed to reach the persons to whom they were addressed through changes of residence, and some were returned indefinitely filled up. In proportion to the whole of the "returns" the amount indicated must be regarded as highly satisfactory, but a great number, though stamped for posting, have not been received from the recipients of them. It is found that the time specified was too short for enabling some gardeners to bring the matter before their employers, as forms are yet arriving.

Considering all the circumstances of the case, the Committee have agreed to postpone their decision as to their future action till after May 21st, and in the meantime more forms will be printed for distribution amongst such nurserymen as may be willing to circulate them amongst gardeners who may not have been reached by the first issue. Any gardener, moreover, who desires one or more forms can have them, when ready, in return for a post card sent to Mr. A. F. Barron, Royal Horticultural Society's Gardens, Chiswick, London, containing the address of the applicant. It is believed there are many gardeners whose addresses are not given in directories that would like to join in the work, which is described as follows by the Committee:—

The objects of the Gardeners' Orphan Fund is to make grants and allowances of money towards the maintenance of the orphans of gardeners and departmental foremen in nurseries and seed houses.

A. By Allowances.—To consist of any sum not exceeding 5s. per week to children between the ages of three and fourteen years, that may be placed with relatives or other responsible persons acting as guardians, within the knowledge of the Committee.

B. By Boarding-out.—This to consist of free board, clothing, and education for children between the ages of five and fourteen years.

C. By the purchase of admission to some existing institution.

3. Qualification of Candidates.—All candidates must be (1) orphans of persons who have been gardeners, and (2) be nominated by two subscribers or donors to the fund. No child to be considered eligible for the fund until three years old, or receive support after attaining the age of fourteen years.

4. Mode of Election to the Fund.—By the votes of the subscribers and donors only.

5. Voting Power of Subscribers.—Subscribers of 5s. per annum shall be entitled to one vote at each election; subscribers of 10s. to two votes; of £1 to four votes; of £2 to eight votes; and so on in like proportion.

tion. Life donations of £5 shall entitle the donors to one vote at every election; of £10 to two votes; of £20 to four votes; and so on in proportion. Annual subscriptions shall be due on the 1st of January.

The scheme does not make provision for establishing any building or school, the Committee considering it neither desirable nor practicable at present to entertain such a project; but should the fund at any future time assume such proportions as to render it desirable to erect or purchase a building special arrangements can be made for the purpose.

At the meeting referred to, at which Mr. G. Deal presided with his customary ability, the Committee expressed a hope that the editors of the horticultural journals would obligingly make the objects of the scheme known, and invite the co-operation of all persons who desire to see a Gardeners' Orphan Fund firmly established.

EXHIBITION CHRYSANTHEMUMS.

IN your issue of the 14th inst. there appeared an interesting list of Chrysanthemums, giving the number of times each variety was shown at the "National" in 1885, and also in November last. Mr. Shoesmith commenting thereupon asks, "Has there ever been an election of the best varieties of exhibition Chrysanthemums in your pages?" This question can only be directly answered by yourself. But I can forecast the result of such an election with approximate accuracy from having noted down during last autumn how many times each variety was mentioned in your columns as winning first prizes separately or in combination. I subjoin a schedule of the result, which tallies in a remarkable manner with "E. M.'s." list, though that did not pretend to indicate prizewinners. My notes commenced with the report of the Royal Horticultural Society's meeting, held October 26th and terminated in December. Fifty varieties each of incurved and Japanese are given. The other classes I did not note down, as the number of available varieties is so limited.—B. D. K.

Position in Analysis.	Number of 1st Prizes.	INCURVED. First Fifty Varieties.	Position in Analysis.	Number of 1st Prizes.	JAPANESE. First Fifty Varieties.
1	53	Empress of India	1	50	Jeanne Delaux
2	53	Golden Empress	2	43	Madame C. Audiguer
3	49	Lord Wolseley	3	44	Madlle. Lacroix
4	49	Princess of Wales	4	36	Comte de Germiny
5	48	Jeanne d'Arc	5	35	Fair Maid of Guernsey
6	47	Queen of England	6	34	Japonaise
7	43	Lord Alcester	7	32	Route d'Or
8	40	Prince Alfred	8	29	Val d'Andorre
9	28	John Salter	9	28	Thunberg
10	27	Jardin de Plantes	10	23	Mex. Merrilies
11	27	Nil Desperandum	11	23	Triomphe de la Rue des Châlets
12	27	Princess of Teck	12	28	M. Astorg
13	26	Golden Queen (10)	13	24	Criterion
14	24	Emily Dale (16)	14	23	Belle Paule
15	24	Cherub	15	21	Soleil Levant
16	24	Lady Hardinge	16	20	Elaine
17	22	Alfred Salter	17	20	Marguerite Marrouch
18	22	Mrs. Heale	18	20	Baronne de Prilly
19	20	Barbara	19	19	M. Barbet
20	19	Hero of Stoke Newington	20	14	Comtesse de Beauregard
21	19	Mrs. H. Salpman	21	14	Grandiflorum
22	17	Mr. Bunn	22	14	Yellow Dragon
23	13	Prince of Wales	23	13	Peter the Great
24	13	White Venus	24	13	Duchess of Albany
25	12	Baron Bunt	25	13	L'Adorable
26	12	Refugee	26	12	M. John Lalag
27	11	Lady Slade	27	12	Maiden's Blush
28	10	Mrs. Dixon	28	11	Fernand Feral
29	10	Princess Beatrice	29	11	Madame R. Rendatier
30	9	Novelty	30	10	Balmorean
31	8	George Glenn	31	8	Bonquet Fait
32	8	Mrs. G. Kundle	32	8	M. Tarin
33	8	Pink Venus	33	7	Album Plenum
34	7	Venus	34	7	Ilver Fleuri
35	7	Beverley	35	7	M. Delaux
36	7	Mr. Bruncees	36	6	Madame de Sevin
37	6	Empress Eugenie	37	6	Madame John Lalag
38	6	Eve	38	6	Fanny Bouchard
39	6	Guernsey Nugget	39	6	Siratan
40	6	Mabel Ward	40	6	M. Ardene
41	5	Beauty	41	6	Roseum Superbum
42	5	Sir Stafford Carey	42	5	Garnet
43	5	White Beverley	43	5	Glorio um
44	4	Angelina	44	5	Coquette de Castille
45	4	Bronze Jardin des Plantes	45	5	La Triomphante
46	4	Golden Eagle	46	4	M. Freeman
47	4	Isabella Bott	47	4	Triomphe du Nord
48	4	Lady Carey	48	4	Sonia
49	3	Mr. Howe	49	4	Source d'Or
50	3	Nonpareil	50	4	Mallie. Moulis
		St. Patrick			

[We are obliged by this communication, which affords an interesting comparison with Mr. Mawley's list. An election of incurved Chrysanthemums appeared in this Journal, page 110, February 8th, 1883, in which the first twelve were Prince Alfred, Golden Empress of India, Princess of Wales, Empress of India, Jardin des Plantes, Queen of England, Barbara, Princess of Teck, Hero of Stoke Newington, Mrs. Heale, Mr. Bunn, and Lady Hardinge, in the order named.]

CUCUMBER CULTIVATION.

(Continued from page 308.)

PLANTING.—Plants from a sowing made early in July will be fit to place out in beds early in August. These are the autumn fruiters, affording fruit from October to Christmas inclusive. Seed sown early in August will give plants to place out by the middle of September. These are winter fruiters, and will give a few fruits in early winter, a full supply at Christmas, and continue it up to April. Plants from seed sown early in September will be ready to place out the first fortnight in October. These are winter fruiters and give fruit from Christmas to April. Seed sown early in January afford plants for planting out early in February. These afford fruit from early April onwards, and are termed spring fruiters.

The soil in the pots must be moistened to the drainage when the plants are turned out, having watered them a few hours previously, thereby insuring the ball turning out clean, instead of adhering to the pot. Make the soil firm about the roots and place them so that about an inch of the stem below the seed leaves is clear of soil. Secure the stake supporting the plant to the wire of the trellis, but if there is a leaning any way let it be towards the path. If the weather is bright shade for a few hours in the hottest part of the day until the plants become established. A ring of soot around the stem will be useful as a safeguard against slugs, drawing it a few inches from the stem. The soil must be warmed through before the plants are put out.

TEMPERATURE.—A temperature of 70° to 75° should be secured as soon as possible after daybreak, or not later than 8 to 8.30 A.M. If the day be rainy or snow prevail the lower temperature or 70° should prevail, if mild the higher or 75°. Sun heat will raise it to 80° or 85° or more, closing from October to March inclusive by 1 P.M. A temperature of 90° to 100° from sun heat will cause no injury. In very cold dull weather it is better to keep the temperature between 65° to 70°. The minimum temperatures of 65° on mild nights and 60° on cold nights ought not to be registered until daybreak. In early autumn the temperature may be 5° higher if mild. In February, or as soon after Christmas as the weather admits, the days being brighter and longer, the night temperature should be 70°, falling 5° or even 10° when the nights are sharp and the days bright.

There is much saving of heat in having canvas or other coverings for drawing over the roof lights in severe weather, and in very severe weather the thermometer should be so placed that it can be read from the outside through the glass. This will save opening the door many a time, letting out heat at 70° and admitting cold air. It will also be well to have mats suspended in front of the door so as to lessen the change of air in going in or out in very severe weather.

MOISTURE.—Syringing the plants in the morning and again at closing time will be necessary until the weather is getting damp and dull in autumn. In dull weather it must not be practised, but a moderate degree of moisture should be maintained, but it is a matter that requires much care and judgment. In dull weather in November and December the moisture given off by the soil, &c., will be sufficient, or a light sprinkling only will be necessary. In a foggy time a rather dry condition of otherwise moist surfaces will be necessary. In sharp weather, when more fire heat is necessary, the moisture must be correspondingly increased. As the days lengthen more moisture will be necessary, syringing being practised at closing time, but some discretion should be exercised, as it is important that the foliage become fairly dry before nightfall. Morning syringing is at best questionable, but practised early I think it an advantage in bright weather, especially when resorted to as a means of preventing or cleansing the plants of insects, as without syringing red spider gains possession and spreads with astounding rapidity. In bright weather damp the house three times a day—in the morning, at closing time, or early in the afternoon; those being the times when the plants are syringed, and before leaving at night or from 5 to 6 P.M. On very bright days distribute water on the floor more than three times a day, the object being to prevent evaporation and keep cool and moist, but much may be effected in preventing evaporation from the foliage by keeping the ventilators closed in a period of bright windy weather. All water used should be of the same temperature as the house. To counteract the evil influence of a dry heat evaporation troughs are useful. They will not, however, be wanted in the dull moist weather of November and December, nor at any time when the weather is mild but wet. It is when the weather is bright and sharp that evaporation troughs have most value, and at such times they should always be kept full with liquid manure, so as to give off ammonia—a powerful aid in preventing the appearance of red spider. As to the time to supply moisture from the evaporation troughs, the cultivator

will need to exercise his judgment according to the circumstances of the case.

VENTILATION.—So long as the growth of the plants is slow the necessity of ventilation is not great; indeed, in the winter months none is given, unless the temperature is likely to rise so as to cause growth to be made of a soft flabby texture, then ventilation is resorted to. The principle of ventilation is to accelerate evaporation and the assimilation of the juices of the plant. It will be obvious that admitting air after the temperature has reached 90° so as to lower it to 80° will be excessive, giving a sudden check. The true system of ventilation is to provide a little early—not to prevent the temperature rising, but to allow its advance, and then increase it with the advancing heat as early in the day as practicable, not allowing any diminution from the temperature reached without reducing the ventilation. This is extremely difficult to carry out in practice, so we close early and allow the temperature to decline with the sun's power, and are careful about nothing further, as a temperature of over 100° is found safe with Cucumbers, though one of 90° to 95° after closing gives the greatest ease of mind. The temperature not rising above 75° no air is necessary; above this it may be given in accordance with the sun heat, so that a temperature from it can be secured through the day of 80° to 85°. The chief thing is to avoid cold currents, which can be effected by some wool netting fixed over the ventilators, and to admit air on the lee side, at the apex first, except in windy weather, when it is better to allow the temperature to advance than admit cold air to reduce it.

WATERING.—It will be necessary to afford water to keep the soil moist. There ought never to be any attempt at watering until the soil becomes to some extent dry, yet not so dry as to cause the foliage to flag or cause a cessation of growth. Then a thorough supply should be given—enough to wet the soil through to the drainage. No more should be given until the soil again becomes dry, observing the same conditions as to not allowing the growth to be affected by deficient water. This is a fair criterion, but when the plants are in free growth and bearing water will be required more freely. It may only be wanted once a week in some weather and at certain stages of growth, and in other weather with the plants growing and fruiting freely it may be required two or three times a week. Plants having limited rooting area will have need of much more water when in full growth than those with a larger amount of soil. The necessity of watering must be ruled by the soil, the condition of the plants, and time of year. They will require much less water in autumn and winter than in spring when the days are longer and evaporation stronger. All water used should be of the same temperature as the bed.

BOTTOM HEAT.—In the early stages of growth the base of the hillocks or ridges only will be heated, and these should not exceed 90°. From the gradual earthing of the bed bottom heat becomes more important. In the case of the fermenting beds we have a temperature of 90°, which is too high, but it will decline, though it must be kept from doing so below 80° by means of the hot-water pipes running through the fermenting beds. Keep the temperature of the bed steady at a foot depth from the surface at 80°, this being ascertained by a ground thermometer. The temperature of the bed will be somewhat less at 6 inches, therefore 80° is the minimum at a foot depth and 90° the maximum, which must not be exceeded. The nearer it is kept to 80° the better, except when the temperature in a dull period is low for several days, when it may fall to 75°. In the case of a stagnation of growth from over-watering, or a check of any kind, the bottom heat should be increased 5°, and the top heat kept moist and warm, so as to encourage root action and growth.—G. ABBEY.

(To be continued.)

CHISWICK HOUSE, CHISWICK.

THIS establishment, now tenanted by the Most Noble the Marquis of Bute, K.T., was once the residence of a former Duke of Devonshire, a munificent patron of horticulture, one who might be said to have had a passion for gardening, and President at that time of the Horticultural Society in its "palmy" days; who sent collectors abroad in order that his own collections should be enriched with the spoils as it were of other lands more horticulturally favoured than our own. Chiswick House has many claims on the attention of all horticulturists. In the days of the famous old Chiswick Shows the garden was the scene of many a notable gathering; it might be truly said that illustrious people congregated there, attracted doubtless by the beauties of the house itself, the wealth of fine trees in which it is embowered, the rich lawns, tranquil water, and brilliant flower garden. Speaking of the Chiswick Shows, there is a link at Chiswick House binding us to the happy past, and, indeed, pleasing reminiscences in the history of the Society.

Some gates, lately re-decorated, are still to be seen that once led from the Duke's grounds into the Royal Horticultural Society's Gardens, and

on the occasion of the famous *fêtes* were thrown open for the convenience of visitors.

Horticulture seems to have been for generations in the ascendant at Chiswick. Kent lies buried in the vault of the Cavendishes; he was the Paxton of the last century. Horace Walpole says of him, "As a painter he was below mediocrity, as an architect he was the restorer of the science, as a gardener he was thoroughly original, and the inventor of an art which realises painting and improves Nature. Mahomet imagined an elysium, but Kent created many."

Before entering upon a brief description of the grounds attached to Chiswick House, perhaps it may prove of interest to place on record what may be called a few "historic notes," for which we are mainly indebted to "Cassell's Old and New London." Chiswick has witnessed the death of more than one political celebrity. At the end of August, 1806, the great statesman, Charles James Fox, was in his last illness removed to the Duke of Devonshire's villa, where he died a fortnight later. The bed-chamber which he occupied opens into the Italian saloon, and before the window grew a Mountain Ash, which appears to have been to him an object of great interest.

Twenty years afterwards there came hither to die, in the same villa and the same room, and nearly at the same age, the classic, witty, and brilliant George Canning. He died on the 8th August, 1827.

The apartment in which the two statesmen breathed their last is thus described by Sir Henry Bulwer (Lord Dalling) in his "Historical Characters":—"It is a small, low chamber, over a kind of nursery, and opening into a wing of the building, which gives it the appearance of looking into a court-yard. Nothing can be more simple than its furniture or its decorations. On one side of the fireplace are a few bookshelves; opposite the foot of the bed is the low chimney-piece, and on it a small bronze clock, to which we may fancy the weary and impatient sufferer often turned his eyes during those bitter moments in which he was passing from the world which he had filled with his name and was governing with his projects."

The grounds of Chiswick House were greatly enlarged by the late Duke of Devonshire. In Miss Berry's journal, under date of June 1st, 1813, is the following entry respecting them—"Drove with the Duke of Devonshire in his curricule to Chiswick, when he showed me all the alterations that he was about to make in adding the gardens of Lady M. Coke's house to his own. The house is down, and in the gardens he has constructed a magnificent hothouse with a conservatory for flowers, the middle under a cupola. Altogether it is 300 feet long. The communication between the two gardens is through what was the old greenhouse, of which they have made a double arcade, making the prettiest effect possible." It should have been stated previously to this that the entrance gates are approached by what is known as the Duke's Avenue, a public thoroughfare, composed of grand Limes, forming, indeed, with their welcome shade a charming and cool retreat in the summer. The avenue is about 600 yards in length, so that some idea can be formed of its beauty when in full leafage. Referring again to the entrance gates, they have been recently restored to the condition in which they were some thirty years ago, in the old Duke's time, and decorated in white and gold, surmounted by the Devonshire coat of arms. They are said to have been brought from Gibraltar by Lord Heathfield, who had them as gates to Heathfield House, now a thing of the past, for some time. On the demolition of Heathfield House they were given to a former Duke of Devonshire, who had them enriched with their decorations of leaves and scrolls, surmounted with his coat of arms, and placed here as the principal entrance gates. The inside avenue, about 400 yards long, is also planted with Limes, the undergrowth being Ivy, a pretty combination. Hereabouts we noticed a fine specimen of the Black Walnut (*Juglans nigra*).

This brings us near to the Chiswick, or South Lodge, thence the carriage drive winds some 300 yards, bounded by trees or grass lawn. Amongst them we noted good examples of the Flowering Ash, Bird Cherry, Cedars, and noble Oaks, until we reach the broad approach, about 60 feet in width, planted on each side with fine specimens of Lebanon Cedars. The Cedar Avenue, as it might well be called, is a distinct and striking feature. On one side, next the Cedars, is a bower of Limes, and on the other fine specimens of Catalpas, Tulip Trees, Weeping Elms, &c. Cedars constitute a noble feature; indeed, it is said that some of the first introduced to this country were sent here. By the front portico to the mansion are two very fine examples, 80 to 100 feet in height, one measuring in girth at 4 feet from the ground 14 feet 6 inches. Then, again, facing the north-west front of the mansion—where the grand receptions in the good old days took place—are some majestic specimens on the lawn clothed to the ground, the spread of one of these being rather over 100 feet, and its girth at 3 feet from the ground 17 feet 9 inches. We were struck, at this point in our visit, with the velvety appearance of the grass, softened and refined by the frequent labours of the mower.

The broad view looking westward from the mansion across the lawn to the lake is a fine one, with the Palm-like Cedar and Yew trees in the distance; a fine tree of Lucomb's Oak, a noble evergreen clothed to the ground (in passing, the Evergreen Oaks are in strong force here); Abies Douglasi, Silver Birch, Swiss Pine, and Weeping Poplar; the lake edged with Flags, Bulrushes, &c., almost hidden with bold and effectively planted masses of Rhododendrons. Of other views, some admirable ones are obtained from a hill or raised walk called "The Mount." Many a lesson in effective landscape scenery could be learned here. As an instance, from one point we beheld stately Cedars of Lebanon, forming a magnificent background; in the mid-distance Pinus

Lambertiana and Lombardy Poplars; in the hollow or dell the lake bordered with Rushes, Cedars, and Dogwood (the bark of the latter in winter becoming beautifully crimson, and therefore very effective); a fine tree of Taxodium distichum, admirably placed, with its pleasing light green foliage; sides and foreground of Holly, Yew, Box, Laburnum, &c., and on the brow of the mount a complete carpet of the St. John's Wort, Hypericum calycinum. Other views from the "Mount" are good, notably one. In the distance, almost hidden in the leafage of its surroundings, is seen the domed roof of a "Temple" by the lake, the latter almost concealed by the overspreading branches of venerable Oaks and Yews, and the drooping of the Silver Birch.

Unfortunately a new wall, built about two years ago, which bounds the place on its north and west sides, presents itself to view obtrusively in many places. Mr. May, the garden superintendent, is at the present time actively engaged in covering it with Ivy, and shutting it out by the aid of plantations of trees and shrubs. This, with a little island formed at the end of the lake and the formation of sloping banks planted with shrubs, Ferns, Ivy, &c., will, as time goes on, impart new and improved features to the place. By the bridge, over a picturesque stretch of water, are two splendid Wych Elms and many other fine Elms, Limes, Hornbeams, Oaks of large dimensions, and a good Scotch Pine (*Pinus sylvestris*) by the water side. Near this bridge begins the Rhododendron walk, which, although chiefly of the common *R. ponticum*, forms a fine feature from the free and luxuriant growth. The Hollies, too, at this part are exceptionally fine trees. Then near at hand is *Sequoia sempervirens*, also a fine specimen of *Wellingtonia gigantea* about 60 feet in height, planted in 1851, the year of the Great Exhibition. Next we light upon a glorious bush of *Andromeda floribunda* 12 feet through. What a sight it must be when in flower! Referring to the *Wellingtonia gigantea* just now (planted in 1851), we were reminded of what that grand international gathering was meant to symbolise—a reign of peace amongst the nations. In another portion of the ground we are reminded of war by passing what is known as "Napoleon's Walk," so named in memory of Napoleon I., and also from the fact that it leads to a summer house in which is placed a bust of the great general. The length of the walk is about 240 yards, and the hedges of Yew on each side are about 15 feet in height, forming a remarkable feature.

Speaking of Napoleon reminds us of memorial trees planted by royal and other distinguished personages on the occasion of the Prince of Wales's brilliant garden parties when Chiswick House was occupied by His Royal Highness:—A *Cedrus Libani*, planted by Her Majesty, June, 30th, 1874; *Wellingtonia gigantea*, by the Shah of Persia, June 28th, 1873; *Wellingtonia gigantea*, by the Czarowitz of Russia, June 28th, 1873; *Salisburia adiantifolia*, by the Czarina of Russia, June 28th, 1873; *Cedrus Libani*, by Prince and Princess of Wales, July 14th, 1874; *Cedrus Libani*, by the Emperor of Russia, May 17th, 1874; *Cedrus Libani*, by the Duchess of Edinburgh, May 17th, 1874; *Cedrus Libani*, by the King and Queen of the Hellenes, July 18th, 1876. The above Cedars were seedlings from the old Cedars close by, and were grown in small flower pots, and are now only beginning to grow freely, all showing signs of the confinement which the roots underwent during the first few years of their existence. Two more commemorative trees remain to be mentioned—viz., *Cedrus Deodara*, planted to commemorate the visit of the Emperor of Russia, June 10th, 1844; and *C. Deodara*, planted by Garibaldi, April 12th, 1864. To a magnificent Oriental Plane, forming quite a bower, and covering a space of about 100 feet in diameter, is affixed a tablet to commemorate the visit of Princess Maria Nicolaiewna of Russia in 1853.

A very interesting spot is that known as "Poet's Corner." Under the shade of some fine Evergreen Oaks forming a semicircle are old marble figures of Nero, Cicero, and Brutus, from Adrian's Garden, Rome, with others in stone of poets; also large stone urns and fine stone or marble seats finely cut, with drapery, now weather-stained and covered with moss. How those of an antiquarian turn of mind would revel in this spot! As if on guard here are to be seen on each side of the walk a lion and lioness, very lifelike. Between the figures the ground is covered with Ivy, and the moss has carpeted the once gravelled paths. In fact, there is an old-world appearance about Poet's Corner that is truly charming. Another interesting spot is that known as Chestnut Square, planted with fine Sweet Chestnuts, originally serving as the boundary of a bowling green when bowling was fashionable.

An object of interest in the garden is an arched gateway leading to the flower garden, designed by Inigo Jones, which was originally erected at Chelsea on the premises which once belonged to the great Sir Thomas More. The gate subsequently belonged to Sir Hans Sloane, but as he neglected it Lord Burlington begged it from him. Its removal hither occasioned the following lines by Pope:—

PASSENGER.

"O, gate! how can'st thou there?"

GATE.

"I was brought from Chelsea last year,
Battered with wind and weather.
Inigo Jones put me together;
Sir Hans Sloane let me alone,
So Burlington brought me hither."

In close proximity to this gateway is a magnificent Yew hedge, some 20 feet in height, and forming a dense screen by a ha-ha. Very noticeable is a well-shaped tree of *Salisburia adiantifolia*, standing just within the precincts of the flower garden. This portion, which in years gone by presented in its season a blaze of colour from the then popular

style of massing of colours of scarlet Pelargonium, yellow Calecolarias, and crimson and purple Verbenas, is now, comparatively, somewhat sombre in appearance, and perhaps more in keeping with the general character of the place. It was rearranged by Mr. May some seven years ago, the beds planted chiefly with a good selection of hardy herbaceous plants and annuals in their season.

All around we could not help remarking the Ivies and Hypericum intermingled with Vines—a very happy combination, splendid groups of Ferns, Foxgloves, Wood Rush, with here and there a Burdock and the Scented Coltsfoot, Geranium Robertsonianum, rambling at will, making excellent cover to the ground amongst the weeds and shrubs. An old plant of Wistaria Consequana was noted growing on the gardener's residence. Some of its wood is more than a foot through.

Doubtless more could be said of such a garden, so full of arboricultural interest, but we must devote a few brief remarks to the plant structures and their contents. The Camellias are the chief plants to arrest attention. Fancy a structure devoted to their cultivation 100 yards in length, and filled from end to end—and such plants, fine bushes in fact, all of them at the time of our visit showing well for flower. They are all old and good sorts, such as Alba plena, one of the

it for at least ten years, and tried most of the so-called earlies against it. I name the Vicomtesse and Keens' Seedling, as they are so well known. Black Prince is not so early with me. I grow them in what we call small 32's, about 5½ inches in diameter, and have been picking every day since Easter. I send you a fair sample, except as regards flavour, which is not quite so good as usual, as I am obliged to grow them in Melon and Cucumber pits which are kept rather close. I have had ripe fruit in the open ground in May. I believe I sent you some last year, the end of May or first week in June.—J. GIBSON, *Draycot*.

[The examples represent a very fine crop of medium-sized fruit. From the same crowns there are from twelve to fifteen ripe fruit, others in various stages of development, with a number of expanded flowers and unopened buds. This variety is apparently the "Princess Frederick William" of the "Fruit Manual," and is there described as follows:—"Fruit, large, roundish, and corrugated. Skin, pale red. Seeds, not numerous, and imbedded. Flesh, with a rosy tint, sweet, and of good flavour. The plant is a great bearer, throws the trusses of fruit well up, and is very early. It forces well, and the fruit when ripe yields a strong perfume, a few plants with ripe fruit on them scenting a large house. On this account it is much prized by some." The perfume of the fruit,



Fig. 59.—CHISWICK HOUSE FROM "POET'S CORNER."

best still; fimbriata, this plant having grown so big that the house had to be enlarged to accommodate it, but it has almost seen its day. Lady Grafton, Lady Hume's Blush, Woods, Beali, nobilissima, imbricata, Chandleri elegans, and many other sorts that were famous in their day but are not now in general cultivation.

Amongst the climbers we noted Magnolia conspicua, Ruscus androgynus, and Fuchsias on the roof, which are beautiful in summer, amongst them the old F. corymbiflora. In a little stove adjoining a few good old-fashioned Orchids are grown, the varieties in flower or showing flower being Lælia anceps, Vanda suavis, Maxillaria picta, Zygopetalum Mackayi; Anthurium macrophyllum was noted as a bold and distinct foliage plant. A fine specimen of the Screw Pine, Pandanus utilis, was observed.

In some houses adjacent are grown large quantities of Callas, Bouvardias, Erica hyemalis, Begonias, Campanula pyramidalis, for decorative purposes. Amaryllises are also well cared for, as are Carnations. A house of Azalea indica, so useful for its flowers, was noteworthy. Judging from a hasty glance, we were pleased to see the dwellings of the under gardeners appeared to be very comfortable and in a satisfactory condition, not pretentious, but excellent compared with some others.—B.

PRINCESS FREDERICK WILLIAM STRAWBERRY.

RESPECTING Strawberry "Princess of Prussia," I admit the flavour is not first-rate, but if plants are started at the same time as Keens' Seedling or Vicomtesse Hericart de Thury are, the Princess will afford ripe fruit at least a fortnight before them. I have grown and forced

sent by Mr. Gibson is very decided. Princess Frederick William is a useful early Strawberry, not very large, but attaining a good size when the fruits are thinned and the plants generously cultivated.]

WATERTIGHT ASHPITS.

MR. BARDNEY gives me a "chance" of demonstrating practically the advantages accruing from having water in the ashpit. Allow me to tell your correspondent that had I held up the ashpits here as a criterion in this matter, or had they been properly adapted for the purpose of supplying steam as a supporter of combustion, I would have made an effort to comply with his request; but seeing that they are only partly suited to meet that object the results are not what might be expected. Besides, the alterations which are taking place yearly render it impossible to give a true return in the saving of fuel. Nevertheless, if it is not too much for the credulity of your correspondent, I may state that at present the cubic space heated is double what it was some six years ago, and yet we do not use more fuel than was necessary then, even although double the amount of heat is obtained, and more forcing done during midwinter than was formerly the case, and before water was used in the ashpits.

I would now ask if it would not be better to try and devise some means of proving whether the advantages resulting from the presence of water in the ashpits could not be practically tested by a boiler and ashpit specially constructed for the purpose, and the cost to be met by subscription? Perhaps Mr. Bardney may be in a position to ascertain what an experiment of this kind would cost. If this suggestion is

acted upon, there are a few things to be observed in order to prove conclusively whether the advocates of water in the ashpits are right. (a). An equal amount of the same kind of fuel to be employed. (b). The temperature of the water in the boiler to be the same at the commencement of each experiment. (c). The atmospheric conditions to be the same. (d). The water in the ashpit to be within $2\frac{1}{2}$ inches of the bottom of the fire bars. By this means we would learn if more heat was imparted to the water in the boiler when the fuel was aided by steam.

In returning to Mr. Bardney's remarks, he asserts that combustion by the aid of steam and atmospheric air are essentially the same. To this I take exception, and if I adopt his tactics it may elicit a little information on the subject. We know that the only element obtained from atmospheric air which aids combustion is oxygen, and that from water we get two elements—viz., oxygen and hydrogen, and that two-thirds by volume of steam is composed of the latter gas. Now will Mr. Bardney tell your readers what becomes of the hydrogen obtained from steam when employed as a supporter of combustion, and at the same time show why there is no economy in fuel?

With regard to Mr. Burton (page 266), he seems to feel the dulness of my perceptive faculties in not being able to grasp his meaning in reference to the amount of water evaporated by a furnace pure and simple. As to the ashpit I hired for illustration, no leakage could be found in it, and the experimental results deduced were considerably at variance with the statement of your correspondent. Mr. Burton would have us believe that carbonised vapour does convert iron into steel. I pointed out to him that even although it did, the steel was as susceptible of oxidation as it was before its conversion; and I would tell your correspondent now that the presence of carbonic acid gas will very much hasten the rusting of his fire bars instead of preserving them, and I may also add that no reliable authority can be found to support the idea that iron is not oxidised by the action of steam. One of the best authorities in the University of Edinburgh writes: "Iron is a rather expensive fuel, and, besides, the oxygen of the atmosphere burns the fire bars quite as well as the oxygen of the steam." If Mr. Burton really desires to know the amount of oxidation which takes place on his fire bars his means of doing so are simple. Let him take out one of them, cool, clean it from all rust and ashes with a hard brush, and then weigh it; then by returning it to its former position and allowing it to remain for a month or other reasonable period, and again by taking it out, cooling, cleaning, and weighing, he can ascertain what it has lost in that time.

Mr. Henry J. Pearson's remarks are applicable to owners of villas who can only boast of a greenhouse, and who seldom require a fire to keep the temperature in it at what is desired. In this discussion it has been plainly shown that water is one of the products when hydro-carbon is burned, and therefore the effect upon the boiler is the same when steam is employed. But we all know that the boilers are protected to a certain extent from the action of steam by the thin coating of unconsumed carbon which we see deposited upon them. His remarks addressed to gardeners about the furnace doors are foreign to anything I have ever seen, as in no one case have I ever heard of anyone "opening them to cool the pipes." Surely your correspondent has made a mistake in this. We all know that more perfect combustion is obtained by allowing a certain quantity of air to pass in by the furnace door, as carbonic oxide would escape up the chimney unconsumed, which consequently means a waste of fuel when no air is admitted by that channel.

None of those who have been able to get their ashpits made watertight have a word to say against them, but quite the reverse. This fact cannot be without its weight in influencing those who are having new boilers fixed.—J. RIDDELL.

CULTURE OF CALLAS.

THESE have become almost indispensable in most gardens, as they are such great favourites with the ladies for house and church decoration, both as plants and cut flowers. Fortunately they are easily grown in large quantities where space is available, and may be had in succession from October until June by starting them on for flowering as required.

To grow them to the best advantage they should be planted out as soon as all danger of frost is over, say about the end of May. Choose a piece of retentive ground, if possible, as they naturally grow with their roots in water on the banks of rivers, &c., and a rich moist loam suits them best. If such a position is not available, trenches should be formed as for Celery, 3 feet apart. Dig in plenty of decomposed manure, and plant them about 18 inches apart, having previously divided them into the size required. If they are to flower in 6 or 8-inch pots the following winter they must be separated into single shoots, and if for larger pots they need not be divided, only they must be planted farther apart in proportion. If it is required to increase the stock every small shoot will soon make a flowering plant if liberally treated.

If the summer is a dry one they should be mulched and well soaked with water occasionally, as the chief thing, in order to get them to flower well the following winter, is to encourage a strong growth during the summer. As soon as frost is expected, or about the middle of September, they should all be taken up and potted,

preserving the fibres as much as possible, and using good rich turfy loam without any addition whatever. Place them in a cool house, and if the weather is bright shade them from the sun and keep them well syringed until they recover from the effects of removal, after which they should have all the light possible. Many of them will be showing flower when lifted, and may either be gently brought forward as soon as established, or retarded as may be desired.

To flower them well in winter requires a temperature of 55° to 60° as a minimum, and a good light position. They should have plenty of liquid manure as soon as the pots are full of roots, and must not be forced too quickly, or the flowers will be small and thin. Those wanted for a succession of flowers should be kept in a temperature of 40° to 45° , and if a trifle lower occasionally they will take no harm if frost does not actually reach them. Their chief enemy among insects is green fly, which is very troublesome at times, and must be destroyed in the usual manner. Red spider will also sometimes attack the oldest leaves, and if it does it rapidly spreads and disfigures them, but the leaves can easily be sponged with water and softsoap.

This plant is ornamental if planted out early in spring at the edge of a lake in a warm position where the roots are just covered with water. It flowers well then all through the summer; in fact this is the only way to see the plant to the best advantage. If it is left out all the winter the frost will only kill the plant to the surface of the water, and it will spring up again all right the following summer. I remember seeing a good plant some years since in Battersea Park which had survived several winters, and was then in a flourishing condition, and possibly it may be there still; but if swans are kept they will sometimes eat the leaves as fast as they grow.—W. H. DIVERS, *Ketton Hall, Stamford*.

CULTURE OF SCARLET RUNNER BEANS.

THE last week in April is a good time to make the first sowing of this indispensable vegetable. The usual practice is to make several sowings of Runner Beans between the end of April and the end of June, and to afterwards support the haulms with sticks from 5 to 7 feet high, and to stop the shoots at that height. The best results, however, are not obtained by following that practice, as I will presently show. In these gardens I plant two rows of Runner Beans, between 60 and 70 yards long each, in drills 3 or 4 inches deep, and 8 feet apart, and running east and west. The first planting is, as already stated, made the last week in April, and the second two months later in front (south) of the first row. As soon as the plants appear and have had a little soil drawn up to them on each side, the sticks, from 12 to 20 feet long, are stuck firmly in the ground 1 foot apart on each side of the same, and are then braced together by a line of Bean sticks fastened longitudinally on the upright sticks at 6 or 7 feet from the ground by means of cross-ties made of tarred string. Instead of stopping the runners, as is generally done, with a view to hastening the formation of pods, they are allowed to grow uninterruptedly, and so cover their allotted space, thereby prolonging considerably the supply of Beans, inasmuch as the individual plants yield a succession of Beans until cut away by frost, the finest Beans being on the top. Our two rows of Runner Beans thus grown are, when in flower, greatly admired by gardeners and amateurs, as being a capital example of the ornamental and useful combined. In consequence of the rows running east and west, the first row having been planted north of, and a couple of months earlier than the second, the latter is protected effectively from autumn frosts. Hence it is that we frequently secure daily gatherings of Runner Beans up to the middle or end of November. When sharp frosts are apprehended all the pods that are fit for use should be gathered and spread thinly on a shelf in a cool room, thereby prolonging the supply three weeks or a month after the haulms had been destroyed.

I would advise those of your readers who have a taste—as every one ought to have—for the ornamental as well as the profitable combined, to plant a single row of Scarlet Runner Beans about 6 inches apart in the row on each side of one of the garden walks (the more central it is the better will be the effect), putting long sticks as supports to the plants on each side, and bringing the tops together and securing them to a series of Bean sticks fixed longitudinally about 7 feet from the centre of the path, so as to form an arch—a delightfully shady and ornamental arbour will be the result. Of course the roots should in every case be kept well mulched and supplied with water in the absence of rain in order to obtain the best possible results. I am sure the same quantity of Runner Beans cannot be secured from three times the space of ground indicated above on the short-stick system.—H. W. WARD, *Longford Castle*.



ORCHIDS AT DOWNSIDE, LEATHERHEAD.

THE sale of choice Orchids announced to take place at Downside, Leatherhead, on May 3rd and 4th will no doubt attract a large number of visitors, as some of the plants are amongst the most valuable in cultivation. Although several new houses have been erected recently, the accommodation is insufficient for the very large collection now in Mr. W. Lee's possession, and in consequence the plants were much crowded in some of the houses. To remedy this Mr. Lee decided to part with a certain number of duplicates, in which have been included several grand hybrids, like *Cypripedium Morganiae*, of which good plants can at present be numbered on the fingers. The plants at Downside under Mr. Woolford's charge are all exceptionally healthy, and there will probably be considerable competition for some of the prizes. The sale will commence each day at 12.30, the following being some of the principal Orchids to be offered:—*Cattleya Trianae* Leeana, C. Dayana, C. Emperor, C. alba, true; C. eboracensis, C. Thompsoni, C. Osmani, C. Dolgoumii, C. Emilie, C. Baekhouzeana, C. Colemani, C. fausta, C. labiata, autumn-flowering; C. calummata, C. Mardelli, C. Skinneri alba, C. Mendeli Selbornensis, C. Morganiae, C. exoniensis, C. Rothschildiana; *Laelia* elegans, special varieties; *L. anceps* Dawsoni, *L. Wolstenholmei*, *L. Amesiana*, *L. bella*, *L. Veitchiana*, *L. flammea*, *L. grandis*; *Phaius tubereulosus*; *Cymbidium Parishii*; *Paehystoma Thomsoni*; *Saccolabium Heathi*, *S. Harrisonianum*; *Dendrobium Phalaenopsis*, *D. Harveyanum*, *D. nobile nobilius*, *D. Falconeri giganteum*; *Maxillaria Sanderiana*; *Masdevallia Harryana*; Bull's Blood, true, and many other splendid varieties; *Cypripedium Stonei platytanum*, C. grande, C. microchilum, C. selligerum majus, C. Arthurianum, C. Wallisii, C. Lecanum superbum, C. euryandrum, C. vexillarium, C. Morganiae, C. tessellatum porphyreum; *Oelogyne cristata alba*, C. Lowi; *Odontoglossum Hrubyannum*, *O. rigidum*; *Vanda tricolor planilabris*, *V. Pattersoni*, and *V. Sanderiana*.

PHALAENOPSIS GRANDIFLORA.

AN excellent coloured plate of this fine Orchid appears in Williams' "Orchid Album" for this month, together with some interesting historical and cultural information. *P. grandiflora* is a native of Java, and was named by Lindley in 1848, and though it had been exhibited in flower the year before by J. H. Schröder, Esq., of Stratford, it was then supposed to be a variety of *P. amabilis*. A variety from Borneo named *aurea* differs in having greenish yellow flower stems, whereas the Java plant has larger and more numerous flowers, the flower stems of a purplish hue, and the habit more robust. Mr. B. S. Williams, in referring to the floriferous character of *P. grandiflora*, states that he has shown specimens with seventy to eighty flowers each. That figured is from a plant belonging to C. J. Partington, Esq., Heaton House, Cheshunt, where, under the charge of the gardener, Mr. Gearing, *Phalaenopses* are grown so successfully. One of the chief secrets in the management of these plants is, that their roots should not be crammed into baskets or confined in any way; let them have freedom, a moist atmosphere, a right position, but not where they can be scorched by the sun, a good temperature, and freedom from draughts of cold air, and they will yield much better results than are generally obtained. *Phalaenopses* are very easily injured by interfering unduly with their roots, and we have seen several examples of collections being almost lost through carelessness in this matter.

THE WHITE BUTTERFLY ONCIDIUM.

In the same issue of the "Orchid Album" is an admirable illustration of *Oncidium Papilio majus*, with large flowers very highly coloured. In connection with it is mentioned the white variety described by Lindley, and Mr. Williams states that Birschell, who travelled in Venezuela and Caracas in 1856 and 1857, sent great quantities of the typical form to England, and also said that he gathered numbers of the white variety, but omitted to mark them in any way. None has ever flowered, nor does it appear to have been introduced since by other travellers, though one might expect that such a plant would be worth a search.

POTATOES DEGENERATING—CHANGE OF SEED.

MR. MURPHY, on page 267, maintains that in nine cases out of ten Potatoes are bound sooner or later to degenerate, and, in proof of this assertion, points out that the favourites which were grown forty or fifty years ago are extinct. I am glad to say I am not qualified to write about the old favourites, but, all the same, do not admit the point my respected opponent fancies he has made. As far as my experience goes the old favourites were heavy cropping and good in quality, but were not disease-resisting. If it can be proved that the disease would not have affected them while yet retaining their full vigour, or, in other words, that they were originally disease-resisting, then I must admit that Mr. Murphy is correct as to the liability of all varieties to degene-

rate. One or more varieties of any kind of vegetable may yet be found that was in cultivation early in the present century, and a stock would be quickly forthcoming if there was a demand for it. Not merely among Potatoes is the change of sorts noticeable, but it is much the same with Peas, Beans, Broccoli, Cabbages, and other vegetables. Some very old sorts of these may be occasionally met with, and seedsmen state they are occasionally asked to supply some almost forgotten variety. These, although they may be saved at the same place for many years, yet retain great vigour, and, as far as the crop is concerned, show no appreciable falling off. It is the quality that is unsatisfactory, and it does not say much for our boasted progress if the novelties are not as a rule superior to our forefathers' favourites. The old varieties of Potatoes are simply ousted out of the catalogues, perhaps sometimes before they ought to be.

I am surprised to find intelligent Mr. Murphy still clings to the notion that there is any benefit derived from greening the sets. Fifty years ago unripe and greened sets were supposed to be the best for planting, these being supposed to start with greater vigour when planted than do tubers which were not lifted before they are fully ripe. Of late years we hear nothing about the superiority of unripe planting tubers, and I thought the greening process was also being gradually forgotten or disbelieved in. Not only have I detected no superiority in the crops obtained from greened sets, but at times the plant has been excessively uneven owing to many of them having been diseased. During seasons when disease is most prevalent, spreading the newly lifted tubers in the open air is almost certain to lead to a number of them becoming diseased, the spores first attacking the skins of the Potatoes in all instances. The greening hides the disease, and diseased tubers will sprout, but in most cases little or no haulm results. Where Potatoes are grown on the same ground for two or more consecutive seasons, which happens in most cottagers' gardens, there are usually a number of self-sown plants left among those properly planted in the rows, and it must be equally as well known that from these are obtained the heaviest crops. There is no sign of degenerating among these, but they are vigorous and profitable simply because the sets have not been weakened by premature sprouting. The true old Ashleaf is perhaps the oldest sort now in cultivation, this being recommended by gardening authorities as being one of the best for frames as far back as 1828. Another better known variety—viz., Myatt's Ashleaf, has been in cultivation a great many years, and if it has slowly deteriorated during that time it must originally have been a wonderful cropper. It is yet one of the most profitable early sorts, and keeps good till January. Veitch's Improved Ashleaf is not sufficiently heavy cropping for our men, but they are always eager to have all the Myatt's there are to spare.

Unless I am much mistaken Mr. Laxton possesses a seedling of his own raising that is destined to become very popular. It is the result of a cross between Magnum Bonum and Scotch Champion, and may be described as an improved form of the latter, more especially as regards the shallowness of the eyes. It is a yellow-fleshed variety, and without any extra care in cooking was floury and good in quality. This should please Mr. Murphy. Mr. Laxton is of opinion that yellow-fleshed varieties, including Myatt's Ashleaf, Lapstone, and Scotch Champion, contain more nutriment than most other sorts, and there is no doubt in my mind as to the correctness of this conclusion.

Mr. Murphy differs from me in the matter of Potatoes degenerating, but agrees with me that it is not always wise or necessary to try a change of seed. Another correspondent, "B.," on page 233, does not believe that varieties are degenerating, but is firmly convinced that where the seed can be had from a totally different soil from that on which they are to be planted the change will prove highly remunerative. At one time I held much the same opinion, but of late years and after close observation I have been obliged to confess it is merely a fanciful theory. Southern growers of my acquaintance certainly have sent for large quantities of seed Potatoes from Scotland, some believing in the advisability of a change, while others prefer to sell out the crops on the ground and purchase fresh seed each year. Some of them admit that they continue the practice more from a belief in old sayings and customs than from any palpable gain resulting. If it is necessary to change Potatoes it is equally so in the case of all other vegetable seeds, and this we well know is quite uncalled for.—W. IGGULDEN.

ROSE SHOW FIXTURES.

A NOISETTE Rose, according to Mr. Rivers, is a Tea-scented Rose that blooms in clusters. I should like to ask whether we are to consider the Rose shows of 1887 as Noisettes? They will come in clusters unless some disbudding shortly takes place. Look at Mr. Mawley's list. Here's a cluster for you. July 7th—Bath, Winchester, Hitchin, Ipswich, Farnham, Farnham, and Romford, all on Thursday, and not a fixture as far as I know for the Friday or Saturday following. Then, again, take the next week. The National Rose Society's Provincial Show at Edinburgh is on Wednesday, July 13th. This precludes anyone but giants from showing on the Tuesday as well, so that after Thursday, July 7th, we small growers must wait until the 13th. Nearly a week! Our Roses, however, will not wait. After that gap, what do we find? Not another show in England of any note until the following Wednesday at Birkenhead. Another week! Mr. Editor, cannot something be done to remedy this state of things? Why should Bedford clash with the National? Is it, Mr. Gall, a law of the Medes and Persians that Hitchin must year after year coincide with Bath? And, Brothers of East Anglia, Berners and Foster-Melliar, take notice I pray you of the "occurrence" of the

Rose feasts, and, since Ipswich is a movable one, use your influence to get it "translated."

What leading people they are at Moreton-in-Marsh! A £10 jubilee prize offered for twenty-four Roses, and the fixture in time. They are well ahead of other Societies in more ways than one. How are other people's Roses I wonder, ours are severely crippled by the frost, especially H.P.'s.—ESSEX CURATE.



GARDENING APPOINTMENT.—We are informed that Mr. J. Horton, for several years general foreman at Welbeck, has been appointed successor to the late Mr. Richard Carr as head gardener to the Duke of Portland. We also learn that Mr. J. Thomas, who formerly served as a student at Shardeloes, succeeds the late Mr. Bailey in charge of those gardens.

— It will be seen by an advertisement in another column that Mr. WILLIAM BARDNEY seeks an appointment as head gardener. His work at Norris Green, his writings in this Journal, and the testimony of gentlemen of authority as to his habits and abilities, entitle Mr. Bardney to a position in the front rank of British gardeners.

— A WELL-KNOWN and respected gardener, Mr. THOMAS BAILEY, who for half a century has had charge of the gardens at Shardeloes, Amersham, Bucks, died suddenly on the 17th inst. in his eighty-first year. He was born at Croydon, October 13th, 1806, and commenced his career in a market garden, proceeding subsequently to Addington Park and Althorpe Park, and became head gardener at Delapré Abbey, where he remained for eleven years, leaving there for Shardeloes in 1838. Mr. Bailey has been celebrated as an exhibitor both of plants and fruits, but his handsome specimen Pelargoniums have gained him many honours. Bailey's Green Flesh Melon is one of his productions, and he also raised several distinct and meritorious varieties of vegetables.

— **PRESENTATION TO A GARDENER.**—We are informed that Mr. William S. Bissett, head gardener and land steward to Sir R. D. Moncreiffe, Bart., of Moncreiffe, Perth, N.B., has been presented with a gold watch, gold pendant, and a purse of sovereigns by a large number of his friends as a mark of the high esteem and regard which he has gained during the thirty years in which he has discharged the multifarious duties of his responsible position.

— We are desired to state that the **SOUTHWELL HORTICULTURAL AND COTTAGE GARDENS SOCIETY'S SHOW** will be held on July 21st, 1887.

— "As an example of THE MILDNESS OF THE CLIMATE ON THE NORTH WALES COAST I may mention that," "Bradwen" writes, "a fortnight ago I saw in a somewhat sheltered position a fine Camellia loaded with fully expanded blooms, and was informed by the gardener that the first bloom on the same plant was cut on St. David's Day, March 1st. Other large healthy Camellias near were also well advanced towards blooming. A few years ago in the same neighbourhood (near Barmouth) I saw several Camellias flowering at Christmas, and in the same grounds at that time were large numbers of Gum Trees, which in the succeeding hard winters were cut down. At Barmouth now there are in the gardens of Dr. Lloyd some plants of the latter that have stood through two winters uninjured; also we find Pansies carrying blooms that would be highly creditable in the height of the season. Fuchsias in ordinary seasons may be safely left in the ground through the winter, and a large hedge of Myrtle in the vicinity is a wonder. This would, however, be far more ornamental and attractive but for the barbarous clipping it annually receives."

— THOSE who are desirous of adopting the **VERNACULAR NAMES OF PLANTS** in preference to the Latin or Greek titles in general use, can form an idea of the kind of nomenclature they would introduce from a paper on "Chippeway Plant Names," by Mr. L. H. Bailey, jun., that was recently published in the "Botanical Gazette," and of which we have received a copy. About fifty common plants are selected, and the names in nearly all cases are remarkable for their length. A few

examples will indicate their character. *Cornus canadensis* is Shashagominan, *Sarracenia purpurea* is Masgikwamotask, *Lycopodium clavatum* is Bashginakwambagon, *Achillea millefolium* is Tehatehamosikan, *Clin-tonia borealis* is Ashkashkataminakwai, and *Taxus canadensis* is Kakagiwantag. The Elder is known as Babashgisikanatig and the Mushroom is termed Washashkwatan. Probably some persons will still prefer names derived from the "dead" languages.

— **CELSIA CRETICA FOR CONSERVATORIES.**—Mr. W. Jordan sends us from Tilgate a flowering spike of this border plant, with the following remarks:—"This old but useful plant ought to be more generally cultivated. I have about a dozen and half of plants flowering in the conservatory here, arranged with Ferns and various flowering plants, that are much admired. The seeds were sown towards the end of last June, and the plants grown in a cool house through the winter; in fact the same treatment required to grow herbaceous *Calecolarias* will suit the *Celsia* in every respect." The spike referred to is 2½ feet long, two-thirds of the length being covered with soft yellow flowers, 2 inches in diameter, and expanding huds. We can quite understand how effective such spikes must be towering above Ferns and other dwarf plants in conservatories at this period of the year.

— **DAFFODILS.**—"S." writes, "Visitors to the metropolitan shows during the past month have had ample opportunities of judging the respective merits of the multitudes of Daffodils now in cultivation. Many of these are so beautiful and graceful that it is not surprising their popularity has increased so rapidly; but there is perhaps too great a tendency to multiply minute variations, and it is to be feared that this will exercise some check on would-be purchasers. Those who exhibit would do well to render their contributions more like selections than collections, and by only representing the more distinctly marked forms they would be less likely to perplex the uninitiated. An excellent collection of these plants has been formed in the Trinity College Botanic Gardens, Dublin, by Mr. F. W. Burbidge, and I hear that he was recently honoured by a visit from Lady Londonderry and suite specially to see the Daffodils. By the way, how is it that we hear nothing of the work of the Daffodil Committee appointed by the Royal Horticultural Society? Their labours can be of little use if they are not made public. If the Hon. Sec. could provide us with a *resumé* of their work for the present season it might be of some service."

— **NARCISSUS CYCLAMINEUS.**—"M. S." writes:—"In reference to this plant, concerning which I sent you some notes last week, I find that in some of the statements I have been misled by information from a private source which I had no opportunity of confirming at the time. Neither of the Rudbecks had ought to do with the 'Theatrum Floræ' mentioned, nor did Parkinson describe a figure among *Narcissus* in the 'Theatrum Botanicum,' Haworth's reference only relating to Rudbeck's, 'Campi Elysi.' The elevation at which the plant grows should have been 300 instead of 3000 feet."

— **THE LINDLEY LIBRARY.**—Owing to the death of Mr. Thomas Moore, the number of trustees (other than the official ones connected with the Royal Horticultural Society) had become reduced to two—viz., Dr. Hogg and Dr. Masters, the only survivors of the original seven. Under these circumstances it became, in the words of the trust deed, "a moral obligation" to fill up the vacancies. This has accordingly been done by the election of three new trustees in the persons of William Carruthers, Esq., President of the Linnean Society, Keeper of the Botanical Department, British Museum; George Maw, Esq., F.L.S., of Kenley, Surrey; and Harry J. Veitch, Esq., F.L.S., of Chelsea. The official trustees are the Treasurer and Secretary of the Royal Horticultural Society for the time being. Though connected in a measure with the fortunes of the Royal Horticultural Society, the library is essentially an independent institution, and is open to the general public as well as to Fellows of the Society, under proper regulations, and under certain conditions books are allowed to be borrowed. The funds at the disposal of the trustees are, unfortunately, too small to allow of much more than the purchase of periodicals, while the room in which it is lodged is so inconvenient of access that the utility of the library is seriously impeded. In any change of site or other circumstance connected with the Royal Horticultural Society, the question of adequate accommodation for the library and its proper maintenance must have earnest consideration. In the meantime, donations of books or of funds will be thankfully welcomed by the trustees.

ROSE-GROWING FOR BEGINNERS.

(Continued from page 307.)

TREATMENT AFTER BUDDING.

SOME people advocate, on paper, that newly inserted buds should be made to start in the autumn following—that is to say, within a month or two of their being put in. However well this practice may answer in other parts of the country, I have no hesitation in saying that here it would be a complete failure. Our summers are far too short to allow the young shoot to become ripe enough to stand through the winter, and I have noticed that where young shoots which have started out naturally during the same season have been killed back by the frosts, that the whole bud has perished entirely. Anyone who has tried both systems will, I fancy, not have much difficulty in pronouncing an opinion. At any rate I vote for the dormant buds and the strong vigorous growth of the following spring.

In the spring, then—for this neighbourhood we will say in March—all the shoots of standards and dwarfs should be cut clean off about 1 inch beyond the inserted buds. In reference to this cutting off the shoots so closely all at once, there is a great difference of opinion. Some nurserymen still adhere to the old plan of leaving two or three buds, natural buds I mean, on the branch. These are called sap-buds, because they draw the sap past the inserted bud, and it is further supposed that if the shoots be cut right down to the inserted bud while yet it is in a dormant state, that in many cases the inserted bud would perish and the plant be lost. I know a case of a foreman who went to be manager of a place where Tea Roses are grown very extensively. These were all budded on the seedling Briar. The first year this foreman was there, when spring came and he proposed to cut away the tops of the stocks right down to the buds at once, as had always been his practice, the owner would not hear of it. So, after a good deal of argument pro and con, it was resolved that one of the great French Rose-growers should be written to on the subject. His answer was, "Cut them down at once." They did so, and they have done so ever since, and do so now. Soon after the cutting away of the tops, the buds will become prominent and quickly burst out and begin to send up thick red shoots. In my opinion, at this stage they are very beautiful, perhaps from the fact that anybody who has seen this happen before realises what a rich treat there is in store for him. There is no doubt about it that a Rose-grower gets twice the amount of pleasure out of a plant that he has propagated with his own hands as he does from one which he has bought in the ordinary way, for it is to some extent a child of his own, and "blood is thicker than water."

As the young buds grow they will require to be fastened to sticks to prevent the wind from blowing them clean out, an occurrence which often happens in windy weather, and which, when it does so happen, is most annoying. Buds in standards are particularly liable to this, being so much further from the ground, and consequently more exposed to the wind. They are much more difficult to fasten so as to be safe too; still another very good reason why we should cultivate dwarfs in their stead. Thatch pegs, or other similar stakes, are capital for dwarf plants, and being placed to the plants as soon as the shoots require to be tied, they may remain all the season for the plants to grow to. For standards, plasterers' laths split down the middle form good sticks for supporting the young shoots, the lower part being attached to the stocks with a tie or two of raffia.

AFTER TREATMENT OF STANDARDS.

The quickest way of forming the head of a standard is to pinch out the top of the shoot as soon as it has formed four leaves. This will cause the bud to throw out three or four shoots, and later on these may be again stopped or pinched to break and form branches again. By this means we might get a fairly formed head the first season. It is hardly necessary to say that this method prevents our getting any blooms from the plant for the first year. It would not be advisable to continue this pinching beyond July, otherwise the shoots might not ripen sufficiently to withstand the winter. Dwarfs may be pinched back in a similar manner; but, as a rule, all except the very moderate growers give us two or three shoots, without any pinching, during the first season.

NOVELTIES.

Most of us have read at one time or another in the newspapers; or elsewhere, very cheap offers of plants, shall we say, at perhaps a tithe of their proper price. These are generally offered as being "fine plants." Those of us who avail ourselves of these opportunities of getting bargains generally end by discovering that advertisers' descriptions are apt to be somewhat disappointing; a sanguine buyer probably sending his cash for, say, twelve "fine plants" of something or another, which in ordinary horticultural commerce would fill the largest basket in the trade, together with

most elaborate instructions for the forwarding of the same by goods train, is not agreeably surprised to receive a small box, postage 3d., which being opened, discloses to view a dozen small rooted cuttings of the articles offered. With these preliminary remarks I wish to point a moral in reference to the subject in question. Of the many new Roses brought out each year, how many stand the test of time? Probably not one in a hundred. The state of affairs seems to be, that if a raiser can get a Rose with one or two good qualities, his fertile imagination supplies the rest.

The very rapid way in which new Roses drop out of sight in most cases, reminds me of nothing so much as of one of those go-as-you-please competitions, where a dozen lunatics start off at the firing of a pistol to ascertain how much injury they can each do to their respective constitutions during a period of six days. A dozen may start, but before many hours go by several of them discover that they are not "in it," and so quietly withdraw; and thus the affair goes on, one after another dropping out, until at the finish two or three poor wretches just manage to drag their weary bodies as far as the winning post, all the others having long since disappeared—so it is with most new Roses.

But stay, perhaps I was wrong or uncharitable in implying that Rose growers availed themselves of the assistance of their imaginations in describing their new productions. Perhaps the new Roses grown in France change their colour when brought over here and cultivated in our less genial climate—perhaps a dingy blue-magenta kind of Rose, with us only fit for cremation, when grown in the "sunny land of France," is "of a deep glowing crimson, superb, grand, glorious," or anything you, or rather the raiser, likes to write down. Perhaps, too, the habit and growth of the variety undergo a startling change; Roses described there as being vigorous, becoming here downright pigmies. I can give an instance—or could do, were it not for the law of libel—of a Rose, the name of which was in everybody's mouth, and the plants of which are now in everybody's garden most probably, from which, notwithstanding that I had six plants of it, I do not honestly think I had half a dozen buds for budding the whole of last season—and yet it is described as a vigorous grower. The above remarks may apply to other lands besides France. I say no more; let those whom the cap fits wear it. I suppose we must make some allowances for the feelings of the raisers too. We must also remember that a man is a very bad judge of his own work, and also that man is apt to take a very rosy view of whatever he does himself. I do not like to say what follows, but I think I ought, and it is this—that if a man brings out a novelty, and names it well, and puffs it well, there can be no doubt but that it brings a lot of grist to the mill. Those of us who are not beginners will not need to exercise our brains much to enable us to call to mind some instances of Roses, which, to put it as mildly as possible, did not come up to the expectations of the raisers; no, nor to the hopes raised in the bosoms of the buyers by the alluring advertisements issued by the raisers aforesaid. Unfortunately, although there is no law to prevent a man from exaggerating, or making "statements not borne out by facts"—in favour of his Rose, there is a law, the existence of which prevents me from telling the truth—provided the truth damages the sale of the said Rose.

I should be sorry beyond expression if anyone who is doing his best honestly to improve the breed and add to the varieties of the flower we all love so well, should think for one moment that I refer to him, or such as he, in the foregoing remarks. There are many honest men engaged in raising Roses. Having said all this against the purchase of novelties, let me say something in their favour.

Anyone who is in possession of a catalogue which shows the year in which any Rose was raised, or introduced, can see at a glance that every year—I think I am right—sees the production of one or two real sterling new Roses. If he will take the names of the Roses in the winning boxes at any of the great shows, and then refer to his catalogue, he will find probably that none of them are more than thirty years old—I speak subject to correction here—and that most of them are very much younger. If he continue to consult the catalogue, and compare notes year after year, he will find that the new varieties are slowly but surely displacing the old ones. Not so in all cases—there are some varieties in which it is difficult, I might say impossible, to see any room for improvement—*Maréchal Niel*, for instance, or *A. K. Williams*, or *Catherine Mermet*, or *Baroness Rothschild*; that is as far as the blooms go; but in the habit, hardness, and freedom of flowering, there is, no doubt, much to be desired. Again, out of one hundred Roses of any one variety, it often happens that perhaps only one or two may be really fit for show or exhibition purposes. Some day in the dim future, no doubt, varieties will be produced with blooms the shape of an *A. K. Williams*, but of good constitution, vigorous

growth, fine scent, of all the different colours, and every flower perfect in form. This is not going to occur to-morrow, however, nor the day after either.

The fact of one or two new Roses being brought out each year, which are really improvements on existing varieties, goes to show that if we are going to keep up with the times, we must have these new comers. But I do not advise for a moment that all the novelties, or any of them, should be bought directly they come out at 10s. 6d., or even 5s. each. I should suggest that the proper course to adopt is to wait and watch, to read the horticultural papers, and see the opinions of those who have bought the novelties at high prices and are proving them. Read, too, the reports of the Rose shows, and also the reports of the Royal Horticultural Society's meetings, where the certificates and other awards of merit are given to new Roses. If a new Rose is really worth having, you may depend upon it its name will be in everybody's mouth, and the careful observer and reader need not waste much of his money.

It will be quite soon enough to buy novelties in their second season, when they are reduced in price. If the buyer follows the above described plan he will be compelled to do so, as there is not, as a rule, much information to be got during the first season about the novelties of that year—except raisers' descriptions, which may be generally taken with a grain of salt—or shall we say half a hundredweight?

The three leading novelties just at present are Her Majesty, Clara Cochet, and The Bride. The first two have not been proved yet to my knowledge; there is no doubt about their growing—Her Majesty has been exhibited by the raiser to some extent, and no doubt Clara Cochet will give us flowers in due time. The raiser of the latter, Lacharme, is of opinion that it is the best Rose that he has ever raised, and as he has produced among other Roses Charles Lefebvre, Xavier Olibo, and Louis Van Houtte, I think there is not much risk about this one. The Bride is a sure card; this I can personally testify. A white sport from Catherine Mermet, it has all the good qualities of that variety, and is, if anything, of more free-blooming habit. Lastly, it will grow, which, in my opinion, is not the least of its virtues.

Since writing these lines we have advices of more new Roses. Mrs. John Laing we have heard of before, but Princess Beatrice (T), and The Puritan, are now announced for the first time. Grand Mogul, too, is now offered. These are all certificated varieties, and the careful observer should watch their progress.—D. GILMOUR, JUN.

(To be continued.)

CHRYSANTHEMUMS AND THEIR CULTURE.

I AM quite prepared to discuss any question so far as my critique had any bearing on Mr. Molyneux's book. Before going any further I must protest against his substituting for argument an assumption of superior knowledge which is displayed to show up the ignorance of his opponent. If we are as far from the "desired point as before" the reasons are because he upholds his teachings as the "royal road" and only road to success. If I have not proved his teachings to be wrong, he has done nothing in the controversy to prove that he is in willing accord with his professions of being anxious to give the large number of Chrysanthemum growers the full benefit of his experience, or to prove himself worthy of his fame. If he is not willing to do so, let him candidly admit it, this course at once will end the controversy. After he has filled three columns of the Journal with matter purporting to be an answer to the critique, he naively informs us on page 266 that when it was published he was quite content to let the general public be the judge as to the soundness of its teachings compared to his own. We are now informed by him that my attempts to prove his perverse alteration of arguments can be of no interest to the general public. This style of argument may be very convenient, but is it trusting to the verdict of the public? I think not. It looks rather as if Mr. Molyneux were assuming the functions of both judge and jury only to remark my ignorance, because forsooth I do not know a "Beverley" from "Mr. Bunn." In my last rejoinder I certainly removed Mr. Bunn and all his relations from the controversy as having no bearing on the argument, and I never asked Mr. Molyneux either to replace it, or his reasons for so doing.

Although Mr. Molyneux asks me for further evidence, which I hope to advance, the only evidence with which he supports his theory rests on the basis that a large number of plants must be grown on the lottery system, trusting to chance for some of them to turn up prizes. The other he delegates to his new found region of "unaccountables." Why does he evade the whole question of the complications of bud formation which I prominently brought forward as the most important factor bearing on the case? If my word is to be relied upon as well as Mr. Molyneux's, I certainly brought sufficient evidence; in fact, according to his own showing, I was "very full" on that point. I am waiting for him to show that I am in error, but the only thing that Mr. Molyneux has brought forward in regard to this point was that a bud sometimes showed in July, with the sapient remark that of course this bud would have to be removed. Allow me to ask Mr.

Molyneux if he found the buds forming in July—say on a plant of Meg Merrilies, or Princess of Teck, or Boule d'Or under ordinary circumstances of growth, when would he be able to secure the next buds? and what would they be worth to us in this part of the country? Yet he asserts that in spite of all I "say to the contrary those sorts will show their buds at the proper time" without any special treatment.

If Mr. Molyneux wants still further evidence let us take the question of the unreliability of the variety Belle Paule, which arose in the Journal last autumn. Several reasons were advanced to account for the flowers not being up to their previous standard. This being comparatively a new and rare sort growers would only have a small stock, and not growing it previously they would be at a loss to understand its habit. The time the buds showed would in most cases be a matter of chance, and complaints would, of course, arise from those who had not been fortunate in securing good blooms, the reason being that the buds were not secured at the proper time suitable to their localities. I assert that the above causes have more influence on the quality of the bloom than any unreliability inherent to the above or any other variety, of course always taking into consideration that the plants are rationally treated.

In further support of what has already been advanced, Mr. Ireland, on taking charge of the gardens of Lord St. Oswald at Nostell Priory last year, in order to improve the collection of Chrysanthemums which he found there, had a quantity of plants forwarded to him. During transit a good proportion of those plants were accidentally broken. From the broken plants flowers were produced, mostly superior to those which were allowed to break naturally, among them being such material as the Queens and Empresses in the incurved section, and Madame C. Audiguier in the Japanese. These same flowers were not only the best in a very fine display, but they would not have disgraced any company of prizewinners.

If Mr. Molyneux had visited Huddersfield Show last year he might have been induced to change his tone somewhat after seeing Mr. Midgley's Japanese flowers, and if his incurved flowers did not win first honours in an open class competition there was every credit due to him, considering that he has only been a grower, like the majority of Yorkshire gardeners, for three or four years. On good authority I am informed that the best flowers in Mr. Midgley's stands were grown on the system which Mr. Molyneux affects to despise. In respect to the flowers generally at Huddersfield, if it is evidence sufficient for Mr. Molyneux, a gardener writes me to say that he "was assured by Mr. Wright, one of the Judges, that the Japanese varieties were as well shown at Huddersfield as at any place he had ever seen." Moreover, Mr. Midgley is so well satisfied with his system of growing that he intends to adhere to what has brought him to the front of Yorkshire growers, which is as creditable to him individually as if he was shining by the reflected light of a silver challenge cup, taking all in all into consideration.—T. GARNETT.

BORONIA HETEROPHYLLA.

SEVERAL species of Boronia have been favourites in British greenhouses for many years, and have retained their places while scores of other handsome and useful Australian plants have been discarded. The chief reasons why they have remained to some extent popular is that they are not so difficult to manage as many other hardwooded plants from the great southern continent; they are free in growth, free in flowering, and readily increased by cuttings. Then, too, while most of them have bright rosy or delicate pale pink flowers, a few possess a most agreeable fragrance that would alone render them favourites with cultivators. As an example of the last-named property it is only necessary to mention Boronia megastigma, which has dull-coloured, almost insignificant flowers, yet so powerfully fragrant that a couple of plants are sufficient to perfume a large greenhouse. Of the brightly coloured species, perhaps B. elatior is the best known and most generally admired. Now, however, we have in the species represented in the illustration (fig. 60), B. heterophylla, one which combines the qualifications of both those named, and it is quite safe to predict that in a few years time it will be the most generally grown Boronia in this country.

Boronia heterophylla is a native of West Australia, being found, according to Bentham, "on the Kalgee River, in places sometimes inundated." It has been known for over twenty years, as it is included by the author just mentioned in his "Flora Australiensis," published in 1863, who gives F. Mueller as the authority for the name. In that work fifty-seven species of Boronia are described in seven series—namely, Valvatæ, Heterandræ, Pinnatæ, Cyaneæ, Variabiles, Terminales, and Pedunculatæ. In the second of these, Heterandræ, so named from the different forms of the anthers in the same flowers, are included B. megastigma, B. heterophylla, B. elatior, B. tetrandra, and B. crassifolia. It will thus be seen that botanically is B. heterophylla as closely related to the two other favourite Boronias as it is intermediate in character. In general appearance it is, however, much more like B. elatior than B. megastigma, it is of similarly slender growth to the former, the flowers are of similar shape and colour, but considerably richer and darker, and then it has the fragrance of B. megastigma.

The plant has been grown for some years at Kew, and on several occasions we have admired its handsome flowers in the Winter Garden, where most of the Australian collection is grown. Messrs. J. Veitch and Sons, Chelsea, have also succeeded in obtaining plants of it, and a number of these shown on March 22nd of this year at South Kensington at once attracted the attention and admiration of all the horticulturists

present, a first-class certificate being unanimously awarded for it. It forms a shrub several feet in height in its native home, though here we have not at present had an opportunity of seeing it at its full size. The branches and stems are slender, with leaves 1 inch to 1½ inch long, pinnate, with two or three pairs of linear leaflets and a terminal one, sometimes trifoliate, reduced to the central lobe, or with one on one side and two on the other. They vary considerably in this way, and it is to this character its specific name, *heterophylla*, is due. The flowers are borne on short pedicels clustered in the axils of the leaves, at

extensive and interesting, but in addition there was the National Auricula Society's show, the exhibits entered in which occupied considerable space, and together the conservatory was well filled. The number of visitors also was much greater than usual during some portion of the afternoon.

FRUIT COMMITTEE.—Present: T. Francis Rivers, Esq., in the chair, and Messrs. F. Rutland, John Lee, Joseph Fitt, G. Norman, G. Goldsmith, T. B. Haywood, James Smith, J. Woodbridge, Harrison Weir, R. D. Blackmore, T. J. Saltmarsh, G. Bunyard, Wm. Denning, and H. J.



Fig. 60.—*BORONIA HETEROPHYLLA*.

first closed in bud-like form, but as they become older opening and assuming more the shape of *B. megastigma*. The colour is an extremely rich rosy crimson, quite distinct from and superior to all the others of the genus. The plant thrives in rough peat with a little sand, good drainage, and plenty of root space, being readily increased by cuttings under a bellglass. A greenhouse temperature suits it well at all times, but when making its growth a slightly warmer position, with plenty of water and occasional syringing, will assist it considerably.—C.

ROYAL HORTICULTURAL SOCIETY.—APRIL 26TH.

THE collection of flowers and groups of plants brought before the Floral Committee at South Kensington on Tuesday were in themselves

Veitch. Several large and unusually well kept collections of Apples were exhibited, prominent among them being fifty-one dishes of Apples and a few Pears from A. H. Smee, Esq., The Grange, Wallington (gardener, Mr. G. W. Cummins), which included some remarkably fresh, firm, and handsome specimens of Beauty of Kent, Gooseberry Pippin, Hoary Morning, Lane's Prince Albert, Cox's Pomona, Dumelow's Seedling, Claygate Pearmain, Cornish Aromatic, Winter Colman, Fall Pippin, Newtown Pippin, and Blenheim Pippin. A silver Banksian medal was awarded for this contribution, and a similar honour was accorded to Messrs. Cheal & Sons, Crawley, for a collection of fifty dishes of Apples, comprising some very large solid specimens, and all in an excellent state of preservation. Very notable were Hollandbury, Beauty of Kent, Lane's Prince Albert, Hanwell Souring, Winter Pearmain, Golden Reinette,

Lord Derby, Loddington, Dumelow's Seedling, King of the Pippins, Curl-tail, Herefordshire Pearmain, Claygate Pearmain, Tower of Glamis, Ribston Pippin, Emperor Alexander, Alfriston, Sturmer Pippin, Hornead's Pearmain, and Rymer. Mr. C. Mundell also sent a collection of thirty dishes of Apples. (Vote of thanks.) Mr. W. Divers, Maidstone, had a number of Apples, which had been kept in a dark room since they were gathered, the temperature of which had often fallen to 28°, Loddington, Blenheim Pippin, King of the Pippins, and Ribston Pippin were all good. (Vote of thanks.) Mr. Barker of Hindlip Hall Gardens, Worcester, showed a seedling Apple, previously noted. (Vote of thanks.)

FLORAL COMMITTEE.—Present—G. F. Wilson, Esq., F.R.S., in the chair; and Messrs. R. Dean, W. Goldring, H. Bennett, W. Wilks, H. Herbst, A. Bradshaw, B. Holmes, B. Wynne, J. Dominy, H. M. Pollett, A. J. Lendy, H. J. O'Brien, E. Hill, C. Noble, H. Turner, J. Douglas, J. Hudson, Shirley Hibberd, and Dr. M. T. Masters.

Messrs. John Standish & Co., Ascot, Berks, had a beautiful group of specimen Erica Wilmoreana, most profusely flowered, the flowers of a bright rosy colour at the base and white towards the tip. A useful free-growing Heath. Mr. J. Walker, Thame, Oxon, sent four boxes of Rose blooms, the samples of Maréchal Niel being extremely large and of a rich golden colour, much darker and brighter than usual. Souvenir d'un Ami, Reine Marie Henriette, Duchesse de Caylus, Madame Falcot, and Niphotos were also very beautiful, the last-named being represented by a box of thirty-two fine blooms. Mr. Bond, The Gardens, Elstead House, Godalming, had a group of well-flowered Cattleyas of several different varieties of the early flowering C. Mossiae. Mr. W. N. Bannister, Cote House Gardens, Westbury-on-Trym, showed three plants of a double white Mignonette, the flowers large, pure white, with long branching spikes. It is a pretty variety, but does not produce seed, and is propagated by cuttings (vote of thanks). Mr. J. Chambers, Westlake Nursery, Spring Grove, Isleworth, exhibited specimens of his large double blue Violet Victoria, which has been repeatedly noticed before.

Messrs. J. Veitch & Sons, Chelsea, contributed a group of Amaryllises, comprising several handsome forms, one of which, Ambient, was certificated. The curious and distinct Epiphyllum Gärtneri with large scarlet flowers was also shown. A vote of thanks was accorded for Primula sikkimensis Kingi with tall scapes and pale yellow drooping feet-like flowers. A box of the pure white Magnolia stellata was also shown. Messrs. Shuttleworth & Carder, Clapham, was awarded a vote of thanks for Cymbidium Tiarinum, a peculiar species with dull yellowish sepals and petals, brown on the outer surface, the lip white and spotted with maroon. R. J. Measures, Esq., Cambridge Lodge, Camberwell, had a basket of Trichopiliis, comprising lepidia rosea, suavis alba, and suavis, the flowers being large and beautiful. Flowers of Cyrtopodium Wallisi were sent with yellowish sepals and petals, the latter about 18 inches long (vote of thanks). A cultural commendation was also awarded for Oncidium macranthum lamelligerum with about three dozen flowers. A. H. Smee, Esq., The Grange, Wallington, Surrey (gardener, Mr. G. W. Cummins), was awarded a vote of thanks for Phalenopsis Sanderiana alba with pure white flowers. Mr. J. Douglas had a vote of thanks for Primula sikkimensis. Mr. Owen, Hertford, Cheshire, sent several double gold laeae Polyanthus named Queen Victoria, rich in colour, with a gold edging. Mr. J. Walker, Thame, exhibited several double Petunias. Messrs. Paul & Son, Cheshunt, had a trio of new Amaryllises, one named Mrs. Gaskell being extremely fine (vote of thanks). Mr. R. Dean, Ealing, sent a pure white Viola named Miss Barron, large and free. Mr. R. Miller, Shoreham, sent a box of Myosotis dissitiflora variety, the flowers large and bright colour. A plant of Her Majesty Rose was shown by Mr. C. Turner, Slough, bearing one bloom, large, and of good form and substance, and a delicate but bright pink.

The miscellaneous exhibits were numerous, one of the most interesting being the collection of flowers and plants from the Royal Gardens, Kew, which included fine drooping racemes of Thunbergia mysorensis, the flowers like huge Mimulus, yellow in the throat and margined with bright red, most striking; trusses of Rhododendrons Aucklandi and Nuttalli; Medinillas magnifica and amabilis; richly coloured Sarracenias; fruit-bearing branches of Coffea arabica, the bright red globular clusters of Brownea coccinea, together with a series of Primulas, a number of varied seedlings from the wild P. pubescens being very interesting. A vote of thanks was awarded for this valuable contribution. The other groups we can only refer to briefly, but they were of exceptional merit, particularly the Roses, Rhododendrons, hardy flowers, and Daffodils. Messrs. Paul & Son had a large group of admirably grown Roses in pots (silver-gilt medal), and a group of choice hardy plants (silver medal.) Mr. T. S. Ware, Tottenham, staged an extensive collection of Daffodils and hardy flowers (silver medal.) Messrs. H. Lanc & Son had a group of Rhododendrons and dwarf Roses, very handsome (silver-gilt medal.) Mr. Anthony Waterer sent a collection of Primroses (bronze medal.) Silver medals were also awarded to Messrs. Barr & Son, Collins Bros., and Mr. J. Walker, Whitton, for groups of Daffodils, and Mr. Rumsey for Roses in pots. Messrs. James Dickson & Son showed specimens of Narcissus pallidus praecox. Messrs. W. Wood & Son, Wood Green, had an exhibit of manures, peat, and other specialities; Messrs. J. Green and Nephew, Queen Victoria Street, showing a series of ornamental glasses for flowers.

CERTIFICATED PLANTS.

Amaryllis Ambient (James Veitch & Sons).—A variety with finely formed flowers, sepals, and petals, broad, well proportioned, and bright scarlet, with white central bars; very handsome and excellent colour.

Odontoglossum Cambridgeanum (R. J. Measures, Esq.).—A pretty

Odontoglossum, with brown mottled sepals and petals, tipped with yellow, the lip large, brown at the base, and white at the upper part.

Primula obtusifolia Gammieana (J. Douglas).—A beautiful crimson purple coloured variety, recently certificated at the Regent's Park Show and described on another page.

Primrose Mrs. Wilson (G. F. Wilson, Esq.).—One of the charming Primroses raised at Weybridge, the flowers large, of a rich bluish purple, and a golden eye.

Cyclamen Princess of Wales (Mr. R. Clarke, Twickenham).—A white variety, with a fimbriated crest on the petals. An approach to a double form.

Ptelea trifoliata aurea (Paul & Son).—Leaves trifoliate, the leaflets lanceolate, and of a pale greenish yellow.

Trillium sessile californicum (New Plant and Bulb Company).—Flowers large, white, with long petals, dark green leaves with black spots.

Odontoglossum vexillarium leucoglossum (F. G. Tautz, Esq.).—A pretty variety, the sepals and petals pale rose, the lip pure white.

SCIENTIFIC COMMITTEE.—Dr. M. T. Masters, in the chair. Present: Mr. McLachlan, Mr. Michael, Mr. Ridley, Mr. O'Brien, Mr. Murray, Mr. Smith, Mr. Wilson, Mr. Maw, Dr. Lowe, Mr. Smee, Professor Church, and Rev. G. Henslow.

Clerodendron with Tingis.—Mr. McLachlan drew attention to the curious fact that flowers of *Clerodendron* were sometimes inhabited by a species of plant bug allied to the *Tingis pyri*, which is so injurious in France, where it is called "le tigre." He found remains of pupa at the base of the corolla, and occasionally a perfect insect. The effect of the irritation set up by the insect was to cause hypertrophy to take place, so that the tube becomes much thickened, likewise the filaments and style; while the flower assumes a regular or "pelorian" form instead of being "zygomorphic" as usual. The specimens were received from Baron von Müller, from Australia.

Primula Stuarti, var. *purpurea*.—Specimens, with the following communication, was received from Rev. C. Wolley Dod. (Hooker's "Flora of British Isles," vol. iii, 290. "I send some poor specimens of flowers of this from a plant growing in the open border, because flowers of it were not shown last year at the Primula Conference. Last year one plant produced scapes of fifty flowers each in April and again in September, and then rotted off. The variety *purpurea* flowers here at least a month earlier than the type, which flowers early in June, often attempting to flower again in autumn. I can do nothing with either the type or the variety in pots, owing to the large development of root they require to make. Both are difficult to keep through summer, the fleshy rootstock becoming rotten. Neither has ever ripened seed here, and I find the seeds of var. *purpurea* very difficult to get."

Narcissus pseudo-Narcissus × *triandrus* (?).—Mr. Dod also sent a two-flowered scape and the following observations:—"The bulb of this flower was sent to me in 1885 from sports by Mr. Tait. He supposed it to be a hybrid, having been found isolated amongst the two species named above. It produced a two-flowered scape last April and again this April. The resemblance of the flower to *N. Johnstoni* is remarkable. On comparing it with several *N. Johnstoni* the carriage and general appearance are identical and most of the details, but the flower I send has an enlargement of the corona just below the juncture of the perianth. I cannot observe this in *N. Johnstoni*, or in any true *N. pseudo-Narcissus*. Whether *N. Johnstoni* belongs to *N. pseudo-Narcissus* I think is not yet decided."

Deutzia gracilis, arrested.—Dr. Lowe exhibited specimens showing this peculiar feature in this plant. It was the opinion of Dr. Masters and the Secretary, who had examined these minute green flowers, that it was an arrested state, due to insufficient temperature, but why some branches only were affected and not others, it was difficult to explain, unless, as Mr. O'Brien suggested, root action was inefficient in one part and not in another of the same plant.

Primrose with foliaceous Sepals.—Dr. Lowe exhibited specimens showing all degrees between the presence and total absence of the corolla, accompanied by enlarged leaf-like sepals.

Begonia sp.—Mr. Smee exhibited a large leaf of a *Begonia*, about 14 inches across, with white flowers. Mr. Ridley undertook to name and report upon it.

Myriocarpus stipitata.—Mr. Ridley reported on this plant, exhibited at the last meeting, which had come up with foreign Orchids from Panama, and furnished the name. It belongs to Urticaceae.

Stachys affinis.—Mr. Mann exhibited a rhizome of this plant, which is now being extensively cultivated in France for pickling.

N. papyraceus.—He showed a scape of this species from Tangier no less than 3 feet 4 inches in length.

Fritillaria sp.—He brought a specimen of a small species of *Fritillaria* common at Smyrna. It was sent to Kew for identification.

Corbularia Graelsi, from Sierra, Guadarrama, and a white var. of *Chionodoxa Luciliae* from Nymph Dagh, Smyrna, were also shown by Mr. Maw, as well as a copy of an illustrated Chinese work on botany.

Clivia nobilis.—Dr. M. T. Masters drew attention to the fact that this genus must be considered identical with *Imantophyllum*, as seeds of each gave rise to the form of the flowers characteristic of the other. Thus *Clivia* has drooping flowers with a narrow funnel-shaped perianth; while *Imantophyllum* had erect and broadly funnel-shaped. Mr. O'Brien thought that the change was not characteristic of every species—e.g., *I. miniatum* was true to its own form.

Cattleya intermedia var. *monstrosa*.—Dr. Masters exhibited pro-

liferous states of this species, in which instead of the column there appeared two branches with distorted flowers. It was received from M. Linden, who had previously noticed how certain monstrosities had become fixed, as in the present instance, which had now become prolific for four years.

N. incomparabilis, *hybs.*—Mr. E. Osborne sent specimens which he regarded as hybrids. They were exhibited at the N. Committee, but seemed to be generally regarded as varieties of *Incomparabilis*.

Tulipa lanosa, *Regei* (?).—Mr. Elwes sent a scarlet Tulip from Turkestan. It was sent to Mr. Baker for identification.

Sarracenia, *hybs.*—A fine series of flowers was received from Mr. Moore, from the Botanic Gardens, Glasnevin, consisting of the following sorts:—*S. flava*, *S. flava* × *rubra*, *S. Moorei*, or *S. purpurea* × *Drummondii*, *S. Stevensi*, *S. Williamsi* or *S. purpurea* × *flava*, *S. Patersoni*, *S. Atkinsoni*, *S. Mitchelliana* or *S. Drummondii* × *purpurea*, *S. Chelsoni* × *Drummondii*. A vote of thanks was given to Mr. Moore for the collection.

THE CULTURE OF THE POINSETTIA.

[A paper read at a recent meeting of the Bradford Gardeners' Improvement Society by Mr. E. Cain, gardener to A. Ackroyd, Esq., Manningham.]

THE Poinsettia is one of the most useful plants to grow for dinner-table decoration during Christmas time and the winter months, and is very attractive when mixed with groups of foliage plants in the entrance hall, as its bracts are most beautiful when seen by gaslight. I only know two varieties of this plant, *Poinsettia pulcherrima* and *Poinsettia pulcherrima alba*. The floral heads of these plants are very valuable when cut, as they last a long time in water, also for table decoration, with plenty of Maiden-hair Ferns to relieve their dazzling brightness. They are sometimes employed by ladies to adorn their hair and trim their ball dresses with.

This plant belongs to a poisonous race, and to prove this I will read an extract from an old *Journal of Horticulture*:—"As a warning to gardeners, I think it my duty to inform you of an accident to Mr. Buck, my gardener, on the 8th of this month. As he was pruning a plant of *Poinsettia* he cut his thumb, but took no notice of it at the time, so slight was the cut. On the Thursday following, however, he felt an unpleasant pricking sensation in the thumb, and this soon extended up the arm. On the Friday he felt great numbness in his right arm and leg, and upon consulting a medical man he found that the poisonous juice of the plant produced these painful sensations. His leg was so benumbed as to be useless, but after several applications of fomentations and other remedies prescribed, the baneful effects subsided, only leaving a few spots upon the lower part of his thumb similar to those of small pox. I consider the above of sufficient importance to be kept in remembrance.—OSWALD MOSLEY, *Bart., Rolleston Hall.*"

I will now give a description of my mode of cultivating the Poinsettia. We will suppose that we are in the month of April, and the plants have had six weeks' rest in a dry state. Cut them down to the last eye, shake them out of the old soil, and repot in smaller pots, using soil consisting of two parts good loam, one part leaf mould or old mushroom dung, with a small portion of charcoal and sand to make it light. If the loam is heavy, a third of sandy peat will be necessary. The whole should be passed through a half-inch sieve, and thoroughly mixed before being used. The pots must be clean and dry. Let them be well crocked, not a few pieces of broken pot thrown in at random. Let the first piece cover the hole at the bottom in such a manner that no worm can find a passage into the soil. Over this should be placed two or three other large pieces, finishing with smaller ones. Over these sprinkle a layer of sphagnum moss, and then place the plant in, filling up with the soil. Place the plants in any house or pit where the heat ranges from 50° to 60°. They should not be watered for a fortnight, but be sprinkled once a day with a syringe or fine watering can. When they have commenced growing they must have plenty of light and air, and be placed as near the glass as possible. For the next three months, May, June, and July, the chief points to be observed, are—to see that your plants do not suffer from want of water, and to have abundance of air admitted on all favourable occasions. This will cause them to make stout and firm short-pointed wood. I do not advocate feeding the plants with liquids to obtain extra strong wood, as I believe as good heads are secured from wood of medium size, provided it is firm.

About July 20th I make up a hotbed, about 2 feet 6 inches in thickness, of any heating material that is to hand, such as grass from the lawn, old Pea stalks, refuse from old Strawberry beds, with a part stable manure mixed with it. These are all thrown together and trodden firmly as the work proceeds. If the manure is very dry, which at this season is often the case, I give it a few cans of water as it is being mixed. This helps it to heat more strongly and quickly. The bed is then ready for the frame to be placed on it. The size of the frame must have been decided before commencing to build the bed. The frame is placed facing the

south, having a steep pitch. I then put from 4 to 6 inches of partly spent manure inside the frame to keep down any rank steam. It helps also to bring the cuttings nearer the glass. Having inserted a trial stick, place on the lights, leaving a few inches open at the top to allow the steam to escape. In about a week or ten days the place will be ready to receive the cuttings.

The last few days of July or the 1st of August is the best time to insert the cuttings. I then mix my soil as before, only adding more sand to the mixture. This is passed through a finer sieve than the soil for the old plants. The roughest that will not pass through the sieve is placed on one side at the bottom of the cutting pots. I then select as many thumb pots as I intend to insert cuttings. Having placed one crock over the hole, with a few smaller ones above it, some of the roughest soil is placed on the crocks. These all being in readiness, I select three or four pieces of charcoal, break them into a powder, and place it in a small flower pot. With a sharp knife I cut the plants down to the last two eyes, gather the prunings, and take them to the potting bench, then first take off the tops about the fourth leaf, cut off the bottom leaf, and immediately dip the cut end into the charcoal dust. This stops the bleeding, and helps to keep the cuttings from flagging, which must not be allowed from the time the cutting is taken until it is well rooted. When the cuttings are ready to be inserted I fill each pot with soil, and with the middle finger or stout stick make a hole in the middle of the pot, fill this with sand, and then insert a cutting in the sand, so that it is surrounded with sand. Press down the soil and sand quite firm, and as soon as the work is done give it a good soaking with water, allowing them to drain before taking them to the frame. Plunge them up to the rim of the pots if the heat is not too great. If desired, the remainder of the rods can be cut up into cuttings and treated the same as the leading shoot. They will strike as freely, but will not give quite as fine heads.

The frame in which the cuttings are placed must be kept closed and well shaded until they have formed roots. Do not fear damping, as they delight in plenty of steam and moisture. The Poinsettia likes plenty of ammonia in the atmosphere in which it is growing. In about ten days or a fortnight they will be rooted. The shade should now be gradually discontinued, and air admitted on favourable days. In about three weeks these small pots will be full of roots. The plants I want to flower in pots are placed into 6-inch or 7-inch pots. Those wanted for filling baskets are left in the small pots until they are wanted. These little plants stuck in and around the sides of baskets, intermixed with one of the light-flowered draping Begonias, make objects fit for a princess to look upon in the dark days of winter. These newly potted plants I return to the frame, after it has been well forked over, and a little fresh hot manure to give the plants a fresh start. Keep the frame closed for three or four days, but ventilate a little at night. In a few days the plants will have rooted in the new soil. They should then have plenty of air to cause the plants to keep dwarf.

I allow the plants to remain in the frame till the end of September or beginning of October if there is still a little bottom heat. If the heat is gone, the plants must be taken to their winter quarters by the middle of September, because the roots are very apt to perish with cold if left too long in the frame. Place them where they are intended to flower. A number of my plants are placed upon shelves as near the glass as is convenient at this time of the year, the others are given the lightest place in the house. The temperature of the house should range about 60° to 65° by night to 70° to 75° by day, with plenty of air in favourable weather. I give them weak liquid manure twice a week from the time they are taken into the house until the flowers are fully expanded. I also give them plenty of ammonia in the atmosphere by sprinkling manure water amongst the pots and on the floor of the house night and morning. The majority of stove plants like this ammonia in the atmosphere. Keep a sharp look out for insects on any plants that are at rest. I find this plant to be very sensitive to strong liquid manures, and to over-abundance of water, especially in the winter months. It will cause the leaves to turn yellow. The old plants which were cut down in August, if wanted, can be shifted into a size larger pot. Just after they have broken insert them in a little heat at first to receive the same treatment afterwards as the young plants. They will flower almost as well, only a little later. Of fifty cuttings inserted last August, forty-nine rooted and forty-seven produced flowers, measuring from 9 inches to 15 inches across, with the plants from 9 to 20 inches in height, the majority of them being as broad as high, with all their foliage on until in full bloom. The house in which the plants are in flower should now be kept a little lower in temperature, also drier in the atmosphere. It will help to keep the bracts longer in perfection, which will be from six to ten weeks, according to circumstances. When they are past their best they are gradually dried, then taken to a cool house, the pots laid on their sides, there to remain until the time to start them again has arrived.

MR. J. HARTLEY, Ryshworth Hall Gardens, near Bingley, Yorkshire, sends us the following note on a remarkably large Poinsettia grown at Moreton Hall, Whalley, Lancashire, which our informant states he has known for twenty-five years, and the particulars were communicated by Mr. J. Clark, gardener at Moreton Hall:—"This Poinsettia now covers an area of 240 square feet, and has this winter carried 150 bracts, varying in diameter from 6 inches to 1 foot, of the most intense crimson. The stem, at 6 inches from the soil, measures 15 inches in circumference. At the above height three main branches are laid off for covering the wall. It is about forty years since it was planted. From the bottom branches to the top it is 11 feet. It has a border 16 feet long, 18 inches broad, and 1 foot deep to grow in. But it requires to be liberally supplied with liquid manure to keep it vigorous. The house it occupies is kept during winter at a temperature of about 50°. We have not the command of any more heat for it, or I should let it have a few degrees more. I intend to remove as much of the old soil as I can without disturbing the root, and give it a top-dressing of good soil, as its present soil seems rather sour. I might add it carried about a similar number of bracts last year."

NATIONAL AURICULA AND PRIMULA SOCIETY

(SOUTHERN SECTION).—APRIL 26TH.

GLOOMY anticipations regarding the success of the Southern Auricula Show were formed by some pessimistic persons this season; but though there was reason for a feeling of doubt as to the probable effects of the peculiar weather we have experienced, yet the forebodings have happily not been realised. Though the Exhibition could not be termed the best the Society has held, it was altogether a creditable and fairly representative display. The competition was good, the entries numerous, and the exhibits generally of much better quality than we expected to see—better, we are inclined to think, than last year. Some difference of opinion always prevails in these matters, even amongst the cognoscenti. Thus one authority, but only one, termed it a very indifferent Show, another considered it as a good Show, a third thought it highly satisfactory, and fourth did not hesitate to include it amongst the best Auricula Shows he had seen, and these were all growers and exhibitors of note. It is therefore excusable if the uninitiated differ slightly in their opinions on technical subjects. Our own impression was that there was rather more irregularity in the plants exhibited—that is to say, there were few really even collections, and all seemed to have found a little difficulty in securing the requisite number for the various classes. With regard to the Northern exhibits this might be expected, and no doubt in some cases extra heat had been necessary to bring them out to time, inducing longer flower stems than are considered desirable, and rendering the aid of substantial stakes essential to support the heavy trusses of flowers. Then, too, there were many specimens with very small heads—some, indeed, with only three pips, certainly much below the exhibition standard—but these were the defects. To compensate for them the plants were generally strong, and healthy little specimens, with fine vigorous rich green foliage and plenty of good proportionate trusses, could be found, in which the flowers showed all the symmetry and freshness that could be desired.

The northern growers included the Rev. F. D. Horner, Burton-in-Lonsdale; Mr. S. Barlow, Manchester; Mr. A. Potts, Chester; Mr. F. Pohlman, Halifax; and Mr. W. Bolton, Warrington; Mr. Ben Simonite being unfortunately absent. These contributed well in most of the classes, and Mr. White had the honour of staging one of the best examples of Traill's Prince of Greens that has been seen at the Metropolitan Show. Coming as this did from the Killingworth Colliery district, it was especially interesting, and it excited the admiration, perhaps the envy (if florists are capable of such a feeling) of many an Auricula grower who has been disappointed in his efforts to obtain a good example of this well-known variety. Mr. White's plant was a strong one with a rather tall flower stem and a truss of eleven fine pips, even, smooth, and beautiful. It was one of the sensations of the Show. Of the southern growers Mr. J. Douglas was as usual a successful exhibitor; he did not, however, gain so many honours as usual in the larger classes, though he defeated Mr. C. Turner of Slough with fifty plants—no inconsiderable victory. Mr. C. Phillips and Mr. W. L. Walker, both of Reading, Mr. E. Spurling of Blackheath, and Mr. A. J. Sanders, Bookham Lodge Gardens, Cobham, were the other principal southern competitors.

New varieties were abundant, and certificates were liberally bestowed, all the following being honoured:—

Amanda (Horner).—A grey-edge variety, with deep purplish black body colour, good pure paste and bright tube.

S. Barlow (Bolton).—Another grey-edge variety, black body colour, a well-proportioned pip, a strong truss with ten fine even pips.

J. Douglas (Bolton).—A green-edge variety, black body colour, pure white dense paste, but rather dull tube.

Sir W. Hewitt (Douglas).—A very dark crimson self, excellent rich colour, and a beautiful symmetrical pip.

Magpie (Horner).—A white edge variety, intensely black body colour, good dense paste and rich tube, seven pips in the truss shown.

Dulcie (Horner).—A rich maroon self, well-proportioned pip, ten in a truss on the strong plant in the first twelve show varieties.

Grayling (Horner).—A grey-edge with black body colour, pip large and plant strong.

Rubra (Horner).—A bright red self, very distinct and beautiful in colour. Certificates were also awarded for *Abbe Lizet* (Douglas), which has previously been described when certificated by the Royal Horticultural Society, and *E. Pohlman* (Turner) which we did not see.

The prizes for seedlings were awarded as follows:—*Selves*, 1, Perfection (Douglas); 2, Red Rover (Horner). *Green edges*, 1, J. Douglas (Bolton); 2, Conquest (Horner). *Grey-edges*, 1, Sam Barlow (Bolton); 2, Grey Fair (Horner). *White edge*, 1, Amanda (Horner).

SHOW AURICULAS.

The prizes in the principal general classes were awarded in the following order:—

Twelve Varieties.—Six good collections were staged in this class, and the Judges signified their appreciation of their merits by awarding them all prizes. The first prize was secured by the Rev. F. D. Horner, Burton-in-Lonsdale, with strong plants of Horner's Heroine, Simonite's Rev. F. D. Horner, Simonite's Mrs. Douglas, Headley's G. Lightbody, Horner's Magpie, Horner's Dulcie, Horner's Candida, Horner's Rub a, Horner's Fairy Ring, Horner's Merlin, Walker's John Simonite, and Horner's Ivy Green. Mr. J. Douglas, gardener to F. Whitbourn, Esq., Great Gearys, Ilford, was second with vigorous plants; Mrs. Moore, Prince of Greens, Marmion, and Abbe Lizet were especially fine. Mr. W. Bolton, Warrington, was third; Mr. F. Pohlman, Halifax, fourth; Mr. C. Turner, Slough, was fifth; and an extra prize was adjudged to Mr. A. J. Sanders, gardener to Viscountess Chewton, Bookham Lodge, Cobham, Surrey.

Six Varieties.—Seven competitors entered in this class, the competition being keen and the plants generally good for the season. Rev. F. D. Horner again won first honours with Simonite's F. D. Horner, Headley's G. Lightbody, and Horner's Heroine, Kathleen, and Grayling. Mr. W. H. White, Killingworth, Newcastle-on-Tyne, was second with strong plants, including the premier Auricula, Traill's Prince of Greens, with a truss of eleven clean handsome pips, which excited the admiration of all the growers present. Mr. F. Pohlman was third, Mr. J. Douglas fourth, and Mr. W. Bolton fifth.

Four Varieties.—Some of the six competitors in this class had rather small plants and pips, some having only three blooms on weak stems. The best four came from A. Potts, Esq., Hoole Hall, Chester, his varieties being Mrs. Douglas, F. D. Horner, G. Lightbody, and Mrs. Dodwell. S. Barlow, Esq., Manchester, was a good second. Mr. W. L. Walker, Early, Reading, was third, his plant of Traill's Beauty having seven fine pips. Mr. C. Phillips, Hamilton Road, Reading, was fourth, and Mr. F. E. Henwood was fifth.

Two Varieties.—Not a large competition, but including some good plants. A. Potts, Esq., Hoole Hall, Cheshire, took the lead with Walker's John Simonite and Simonite's F. D. Horner, the former having five very large pips. Mr. S. Barlow was second with George Lightbody and Black Knight, a seedling self. Mr. S. Spurling, The Nest, Blackheath, was third, and Mr. T. E. Henwood was fourth.

Single Specimens.—Amongst these were some of the best plants in the Exhibition, but although there were not quite so many as usual, a total of eighty was shown in the four sections devoted to them. *Green-edge*.—First and sixth Mr. F. Pohlman with Prince of Greens and Headley's New Green; second, Rev. F. D. Horner with his namesake, third Mr. J. Douglas with Lancashire Hero, fourth and seventh Mr. A. Potts with Rev. F. D. Horner and Prince of Greens, and fifth Mr. Bolton with Prince of Greens. *Grey-edge*.—First and sixth Mr. J. Douglas with a seedling and Silvia, second Mr. A. Potts with Richard Headly, third Rev. F. D. Horner with George Lightbody, fourth and fifth Mr. Bolton and Mr. White with the same variety, and seventh Mr. C. Phillips with Richard Headly. *White-edge*.—First and second Mr. A. Potts with Acme, third Mr. Bolton with John Simonite, fourth Mr. Henwood with Acme, fifth and sixth Mr. White with Traill's Beauty and Horner's Luna, and seventh Mr. Henwood with Conservative. *Selves*.—First Mr. J. Douglas with Sir W. Hewitt, second Rev. F. D. Horner with Heroine, third Mr. Bolton with Mrs. Douglas, fourth Mr. Phillips with Pizarro, fifth Mr. Pohlman with Ellen Lancaster, sixth Mr. White with Lord of Lorne, and seventh Mr. G. Barlow with Loveliness (a seedling).

ALPINE AURICULAS.

The classes devoted to these are always popular, the colours of the flowers are so bright and fresh, and the public can understand them better than the show varieties. In the class for twelve varieties Mr. C. Turner was first, showing capital strong plants with two or three trusses each, the varieties being Mrs. Lewelyn, Eclipse, Wrestler, Mungo McGeorge, Symmetry, Sceptre, Garnet, Edith, Sir H. Darvill, Sunrise, Faust, and Lady H. Grosvenor, all Slough varieties. Mr. J. Douglas was second with smaller plants, but very fresh and good. Mr. C. Turner was again first for six Alpines, showing Mungo McGeorge, Unique, Sunrise, Symmetry, Olympic, and Acquisition, similarly Slough varieties. Mr. J. Douglas followed, one of his best plants being Ada, a charmingly coloured variety, Lady Howard de Walden, and Diadem; Messrs. Spurling, Paul & Son, and R. Dean secured the other prizes in the order named. Mr. S. Barlow had the best four Alpines—namely, Miss Meiklejohn, Velvet Pike (a seedling), Polly, and Charley Needham; Messrs. Pohlman, Henwood, and Paul & Son following closely.

Single Specimens.—Gold-centres.—First and second Mr. C. Turner with Sunrise and Lord H. Grosvenor, third Mr. E. Pohlman with Emir, fourth and fifth Mr. J. Douglas with Lovebird and Miss Mollie, sixth Mr. Sanders with King of Belgians. *Cream-centres*.—First and fourth Mr. C. Turner with Lady H. Cewe and Florence, second and third Mr. J. Douglas with Ada and Queen Victoria.

POLYANTHUSES.

In the classes for these Mr. S. Barlow was the premier exhibitor, taking first with six and three plants, besides several prizes in the single specimen class. The leading six plants included Sunrise, Lancer, Prince Regent, Cheshire Favourite, Exile, and George IV., Mr. J. Douglas following with similar varieties. Mr. Barlow's best three plants comprised Sunrise, Prince Regent and Exile; Mr. Bolton, Mr. R. Dean, and Mr. Douglas being respectively a second, third, and fourth. In the single specimen gold-laced Polyanthus class Mr. Douglas was first and fourth with Naxara and Lancer, Mr. Barlow second and third with Exile and Cheshire Favourite, and Mr. Dean fifth and sixth with William IV. and John Bull.

PRIMROSES AND PRIMULAS.

These have considerably increased in numbers, and formed a pleasing addition to the show. Messrs. Paul & Son, Cheshunt, contributing several handsome collections, notably their first prize six double varieties of Primroses, which comprised several richly coloured forms, H. S. Leonard, Esq., Gifford, also a good collection of double varieties in the same class, and secured the second prize. Mr. R. Dean had the best twelve single Primroses, bright and varied in colours; also the premier twelve Fancy Polyanthuses.

Mr. J. Douglas following in each case; but for twelve species of *Primulas* he was first with well-grown plants of *villosa*, *pubescens*, *livea*, *marginata*, *coelestis*, *denticulata*, *rosea*, *verticillata*, *japonica*, *obconica*, *amœna*, *lilacina*, and *intermedia*. Mr. S. Barlow was awarded first honours for six species of *Primulas*—*denticulata*, *obconica*, *intermedia*, *rosea*, *viscosa* and *uvialis*.

The Turner Memorial prize offered for six Auriculas only brought three competitors, Mr. W. Bolton winning the premier position with Rev. F. D. Horner, Mrs. Douglas, Prince of Greens, Lancashire Hero, Reliance, and John Simonite, all excellent plants, the first-named variety having a truss of nine pips. Messrs. P. Henwood and C. Phillips were second and third.

After the judging was completed a luncheon was held in the Royal Albert Hall, which was well attended by exhibitors and their friends, Mr. S. Barlow presiding.

SILICA IN SOILS—ARTIFICIAL MANURES.

MR. GILMOUR does me the honour of a friendly criticism of my article on soils. It is a pleasure to learn that land can be kept up to the mark or improved by means of artificial manure alone. "Clay land in Herts," states Mr. Gilmour, "has been growing corn, crop after crop, and the soil is now richer and in a better state to produce corn than it was the first year of the experiment." This on the indisputable testimony of Dr. Voelker, clinching the argument of the same eminent authority, that "the restoration of silica need not trouble us, as there is not a single instance on record of silica, even in a soluble form, being applied to the land with the slightest advantage to Wheat crops." "Silica is abundant in all soils," quotes Mr. Gilmour from Johnstone. What is the value to the current crop of the 72, 69, and 77 per cent. of silica as shown by the three analyses of soil from clay pastures? It forms "nearly two-thirds of the total amount of mineral matter in the grain and straw of Wheat, and of which there is an ample supply in almost every soil. Surely it is not taken from the insoluble 72, 69, and 77 per cent. of silica! In an analysis of clay soil Dr. Voelker gives 84 per cent. of insoluble silica and $\frac{1}{4}$ per cent. of soluble silica. This latter certainly constitutes part of that found in the current crop, and as it goes off the land and is not returned to it on the principle acted upon by the gentleman referred to by Mr. Gilmour, whence I ask does the "crop after crop" of Wheat draw its supplies of silica? From the soil? If so, is it not had at the certain diminution and ultimate exhaustion of the supply? What is the amount of silicates returned to the soil by twelve or twenty cartloads of dung per acre? A load of straw or hay (18 cwt.) contains, assuming it were reduced to ash, mineral matter, two-thirds of which is silica; but it is not reduced by such a process, rather it is converted into manure enriched as an aliment for plants whilst contributing to the comfort and support of animal life. Its silicates are restored to the soil intact together with a large amount of increased silicious matter, and, what is of equal moment, an addition of acids so essential to providing available silica for succeeding crops. The application of sand to clay soil is decidedly advantageous, and though we may not be able to know more of its action than can be referred to as mechanical any more than we know of the action of lime, yet it is known to act beneficially. Compare the silicates available in twelve loads of farmyard manure to those in the 2 to 4 cwt. of artificial manure per acre, which, in very rare instances, contain as little as 5 per cent. and not infrequently 10 to 20 per cent. of sand.

What is the value, if any, of silicates to clay soil? Because in manure the silica is available for strengthening the stem, to give consistency to the grain. The very texture of the clay soil is against the solubility of its silica, and the manure presents not only the needful silicates in proportion to the enrichment, but affords the agents or bases by which it is made available for the future. Granted the soil contains an inexhaustible supply of silica, what is its value whilst it remains inert? I do not doubt that a Voelker can cause land to produce Wheat or any other crop by means of artificial manures alone, but I contend that the application of artificials upon the lines that obtain, in nine cases out of ten, is a sheer waste of resource, and has contributed in no small measure to the present depression. It is a matter of fact that the land produces less than it did before the advent of artificials, which may be dated from the proposing in 1834 of free trade in corn. The principle acted on from that period was the application of artificial in addition to the farmyard manure so as to meet the demand of the starving masses by an increased production of the staff of life. So futile was the endeavour that in 1843 "agricultural products were becoming less profitable in consequence of the alarm of producers, who seemed unable to bestir themselves to meet the competition which they dreaded from foreign grain." Passing the Corn Law Repeal Act and the Potato famine—i.e., the reaction—gave an impetus to horticulture and agriculture in 1851, and both prospered up to 1866, which was a year of depression consequent on the disastrous consequences of rinderpest, which broke out in June 1865. In 1867 the harvest was bad, corn dear; 1870 and 1871 were marked by good harvests, 1872 being a year of storms and rains, the Potato crop failed in Ireland in 1879, season inclement, and a disappointing harvest. What of those things? I may be asked. Just this, Up to 1865 the land was well managed, abundance of stock meant plenty of manure, and this proved so profitable that the farmer invested in artificials to an extent quite equal to what is now practised without any manure calculated to add to the staple of the soil in any appreciable degree. Now all is changed, farmyard manure is at a discount, artificials along with surface scratching are apologies for the dearth and independence of labour, with the unremunerative prices and sorry crops, alias artificials save labour, and deep cultivation is costly; the fact is the régime is pre-eminently superficial.

As a set-off to Mr. Gilmour's overwhelming example of corn, crop after crop being raised without any impoverishment of the soil, I may explain that I am practising in Herts. To the south is an adjoining farm of about 200 acres, all grass land, all mown year after year, and the hay sent to the metropolis. There is a peculiarity about these fields. They are manured in alternate years. Gross rank manure is used, so rough that the straw raked off resembles "cocks," of which use is made for the stack foundations. Now the year of manuring the hay crop is marked by increased length and strength of herbage. The soluble silicates have done something, but the ammonia much more, as the impetus given to the roots causes them to render good account of the insoluble silica, the unmanured crop being marked by a much shorter and thicker plant, with a very much larger percentage of seed, and consequently of a much higher nutritive value. The one is good horse hay, the other is a capital cow and sheep hay, which means milk, butter, beef, and mutton—and money. The first brings 60s. to 70s. per load, the second 75s. to 84s., at home; in fact, we have a load per week delivered at 75s. The crop per acre averages two loads. It pays to bring the manure and cart it two miles from the nearest railway station—yea, it answers to cart it sixteen miles.

Westward is a farm of 800 acres, over 400 acres of permanent pasture, the rest under alternate husbandry. Northward is another of 700 acres, most grass. This gentleman also cultivates three other farms, and on none of these is a tithe of the manure used (i.e., value) artificial. Now these are very successful cultivators. My south neighbour owns a farm larger than the one rented; the west one has saved, report says, £30,000, and owns real estate bringing in £100 per annum, and our north friend has so prospered that three farms have been stocked ready for his sons' acceptance whenever they are disposed to settle. The latter gentleman told me only the other day that the stock he had last Lady-day twelve months were now worth less by £1000, which meant loss of value for rent paid, loss of keep, loss of recouping money paid for attendance, and, our friend emphasised, "rates."

Now these gentlemen are staunch believers in farmyard manure. The land has been well cultivated in time past, and is now as far as the times admit. There is virtue in the land, simply because it is there and abides so as to enable its occupiers to pass that unfortunate ordeal. The apology of 2 to 4 cwt. of artificials for twelve to twenty cartloads of manure marks the difference between seeking or not seeking the protection of the Bankruptcy Court. It is proof of the value of silicates in farmyard manure restored to the clay soil of Herts, a permanent improvement instead of the uncertain one-crop value of artificials. There is one remarkable fact in connection with the 800 and 700 acre farms—viz., in their being acquired out of the profits of guano. The land came by the next best—the nearest approach to farmyard manure, and has been kept fertile by farmyard manure and bones, &c., treasures that are never so valuable as in depression, as land well managed has more heart in it on occasion, a dressing of lime being electrical.

The hay land of Herts and the vegetable producing soil of Beds and Hunts is rendered fertile only by farmyard manure, bone, and soot (Dr. Voelker gives 4 per cent. of soluble silica in soot, with 4 per cent. of insoluble silicious matter); they contain more soluble silica than any artificial, and I contend that it is that solubility of inorganic matter in combination with the elements that tend to render that in the soil soluble which gives them their pre-eminence as manures.

Mr. Gilmour looks forward to the production of Roses and other crops by means of artificial manures, which I think hardly in accord with his previous instructions, who has used "muck" to an extent scarcely admitting of its being buried. Now I wish to ask Mr. Gilmour if he considers ground that has been made very fertile by farmyard manure is a fit and fair example on which to try artificials? Why did not Mr. Gilmour commence his experiments on ordinary soils? How are we to know what part of the value of the artificials is to be attributed to them, and how much of it is due to the previous making of the base by farmyard manure? It seems to me an exceedingly one-sided experiment. His ground, if I have followed him rightly, is very rich, too rich in fact for any but the production of superlatives, "whether for the gratification of our mental or physical appetites." It is full of humus and full of bacteria or minute organisms, on the activity of which depends the availability of the aliment as food for plants, and the use of artificials will increase that activity. For instance, lime will enable the bacteria to convert the humus into nitrate of lime, but there is no value in the artificial other than for the base on which it acts or provides. If your correspondent means that I quite agree with him, for even farmyard manure is enhanced in value when augmented by a judicious proportion of artificials, but I do not for one moment entertain the view that ground is to be "kept up to the mark or improved by means of artificial manures alone," upon the lines that at present mark their application. What gardener or farmer before applying artificials has an analysis made of the soil by a competent authority, and with a "full knowledge of the constituents of the plants and flowers" wished cultivated is guided in the selection? Really Mr. Gilmour hits the weak point in the application of artificials, for upon what system or principle are they applied? Some from containing a little of most things or substances required by plants can hardly be used wrongly, but many soils are not benefited, and in many cases the cultivator is little profited. If there is anything in the land artificials afford a ready means of abstracting it. They "draw" the soil, at least the crop does, and if it go off and is not returned in kind it gets poorer by degrees, and would ultimately become sterile only for the enriching influence of the atmospheric products brought down to it by rain, &c.

Perhaps I may note the prevailing idea of a few eminent cultivators that the silica and lime is of no value in fruit borders. The old mortar rubbish has only mechanical value, anyway a dressing of quicklime is more potent. This view I know was entertained by Mr. W. Taylor, and obtains with Mr. Stephen Castle, who grows Grapes, especially Madresfield Court, according to report, splendidly. I can understand how the value of quicklime arises on a very rich Vine or other fruit border. The humus is inert, but the lime sets it free. Shall we not be told presently that geological formations have not exerted influence on the plants that spring from the earth's surface.—G. ABBEY.

NEW PLANTS OF 1886.

(Continued from page 317.)

Inf., Inflorescence.—*L.*, Leaves.—*Fl.*, Flowers.—*Fr.*, Fruit.—*H.*, Hardy.—*H.H.*, Half-hardy.—*G.*, Greenhouse.—*S.*, Stove.—*Per.*, Perennial.—*Shr.*, Shrub.—*In.*, Inches.—*Lin.*, Line = One-twelfth of an inch.—*Fl.*, Foot or Feet.—*Diam.*, Diameter.—*Pet.*, Petals.—*Sep.*, Sepals.

N.B.—Unless specified, all Orchids may be considered to be stove epiphytes.

POLYPODIUM MACROURUM. (*G. C.* xxv., p. 136.) Filices. S. Fern, resembling *P. phymatodes* in habit and size, but distinguished by its long-tailed fronds, which are rhomboid-caudate, 2-3 ft. long, 6-12 in. broad bright green. The lanceolate tail has its middle part pinnatifid. Queensland (?)

POLYPODIUM PICOTI. (*R. H.* 1886, p. 203, f. 62.) *G.* A noble Fern of bold and vigorous habit, with numerous arching, wavy, elongate-oblong, entire, coriaceous fronds, 3 ft. or more long, and 4-6 in. broad, very shining green above, glaucous green beneath. Brazil.

PORTULACA SOMALICA. (*G. C.* xxvi., p. 134.) Portulacaceæ. S. succulent of botanical interest, 8-10 in. high, with scattered, terete, acuminate l. and pretty bright yellow fl., 1 in. in diam., disposed in terminal clusters of three. Somali Land.

PORTULACA GRANDIFLORA, var. *REGELI.* (*Gfl.*, t. 1209.) *H.H.* A pretty plant of very dwarf habit with terete fleshy l. and handsome pink fl., with a darker blotch at the base of each pet. Chili.

POTHOS NIGRICANS. (*Cat. C. C. d'Hort.*, p. 8.) Araceæ. S. An ornamental climber, suitable for covering pillars or trelliswork. It has spreading l., 5-6 in. long, of a shining blackish green.

PRIMULA ACAULIS var. *IBERICA.* (*R. H.* 1885, p. 557.) Primulaceæ. *H.* A variety of the Primrose with lilac rose coloured fl., flowering from February to April.

PRIMULA ARCTOTIS. (*Gfl.*, t. 1193, f. B.) *H.* A pretty Primrose, with broadly spatulate-obovate, obtuse, toothed, green l., and umbels of rather small white fl. It is nearly allied to *P. pubescens*, but its smaller white fl. at once distinguish it.

PRIMULA ELATOR, var. *CALYCANtha.* (*Gfl.* 1886, p. 242, f. 17.) *H.* per. A pretty form, having a large leafy frilled and lobed calyx, coloured like the corolla. Garden variety.

PRIMULA PROLIFERA. (*Gfl.*, t. 1204.) *H.* per. A pretty species, resembling *P. imperialis*, with elliptic, obtuse, dentate, bright green, rugose l., and a tall scape bearing distant whorls of yellow fl. about $\frac{3}{4}$ in. in diam. Khasia.

PRIMULA REEDI. (*G. C.* xxv., p. 168.) *H.* per. A pretty and distinct species, with ovate-lanceolate, silky-pubescent l., and umbels of 2-3 large, drooping, cream-coloured fl. an inch in diam. Kumaon.

PRIMULA RUSBYI. (*Gfl.* 1886, p. 117.) *H.* A very distinct species, with oblong-spatulate, denticulate l., and scapes 5-10 in. high, bearing 6-10 flowered umbels of deep purple fl., with a yellow eye. The calyx is mealy-white at the base, the mealy part running up between the lobes in acute tooth-like patches. New Mexico.

PRUNUS HYBRIDA, vars. *REPTANS* and *STRICTA.* (*R. H.* 1886, p. 416, 417, f. 107-109.) Rosaceæ. *H.* shr. Two hybrids between *P. japonica* and *P. sinquehaua*, of vigorous growth, the former has the branches prostrate, divaricate, and somewhat naked, and red fl., the latter has erect branches and white fl. Garden varieties.

PRUNUS MUME, and var. *ALPHANDI.* (*R. H.* 1885, p. 564, f. 101-103, and plate.) *H.* shr. A variety with semi-double rose pink fl. Syn. *Armeniaca Mume*, var. *Aphandi.* Japan.

PTERIS BAUSEI. (*Veitch Cat.*, p. 12.) Filices. S. A useful decorative Fern of very compact habit, with densely tufted erect fronds 12-13 in. high. Stipes deep chestnut-brown. Pinnæ about 2 in. long, the lower-most bipinnate, consisting of 4-6 broadly linear deep green pinnules. Garden variety.

PTERIS TREMULA, var. *FOLIOSA.* (*G. C.* xxv., p. 787.) *G.* A form with larger, broader, wavy, and more leafy fronds. A very useful decorative plant. Garden variety.

PTYCHOCOCCUS ORECINUS. (*Cat. Comp. Cont. d'Hort.*, p. 9.) Palmae. Stated to be an elegant Palm from Papua, but no description given.

PUYA ROEZLI. (*B. H.* 1885, p. 80.) Bromeliaceæ. S. A grand and distinct species, with numerous thick coriaceous arching l. 2-2½ ft. long by 2-2½ in. broad, spiny on the margins, shining green above, covered with a white felt beneath. Panicle 2½ ft. high, downy. Fl. subsessile; calyx pale rose, downy; corolla tubular, 1½ in. long, peacock-blue. Andes of Peru.

QUERCUS ROBUR, var. *APENNINA AUREA SUPERBA.* (*Gfl.* 1885, p. 495.) Cupuliferæ. *H.* tree. A superior variety, in which the l. are of a more intense golden tint than in the ordinary form. Garden variety.

RAMONDIA PYRENAICA, var. *ALBA.* (*G. C.* xxv., p. 786.) Gesneriaceæ. *H.* per. A variety only differing from the type in having white fl.

RAPHANUS ISATOIDES. (*R. H.* 1886, p. 372, f. 101.) Cruciferæ. *H.* herb. A form of Radish with the general aspect of *Isatis tinctoria*. The radical l. are lyrate-pinnatisect, and the stem l. are ovate-lanceolate, amplexicaul, thick, and glaucous. The fl. are yellow, in racemes terminating the side branches. Garden variety.

REHMANNIA GLUTINOSA. (*R. H.* 1886, p. 393.) Scrophulariaceæ. *H.* per. of dwarf habit, suitable for rockwork. L. radical, obovate, or elliptic-oblong, coarsely toothed, glandular hairy, as are also the other parts of the plant. Peduncles several, scape-like, 6-8 in. high, bearing 8-15 large reddish-purple Foxglove like fl. at the top. Calyx campanulate, 5-lobed. Corolla tubular-funnel shaped, oblique, 5-lobed. North China.

REINWARDTIA TETRAGYNA. (*Veitch Cat.*, p. 13, and 6 with fig.) Linaceæ. S. shr., very ornamental and free-flowering. It is very similar to *R. trigyna* (*Linum trigynum*), and only differs in having four styles instead of three and rather deeper yellow fl. India.

RHAPHITHAMNUS CYANOCARPUS. (*B. M.*, t. 6849.) Verbenaceæ. *G.* (*H.* in Cornwall). A handsome much-branched spiny shr., with small ovate acute l., and small lilac fl., crowded towards the ends of the branches. Calyx small, minutely toothed. Corolla $\frac{1}{2}$ in. long, tubular, with a spreading 4-lobed limb, the upper lobe bifid. Berries globose, bright blue. Chili.

RHODODENDRON JAVANICUM, var. *TURIFLORA.* (*B. M.*, t. 6850.) Ericaceæ. S. shr. An elegant species, with elliptic, oblong acute l., dotted beneath; and lax umbels of light orange-red fl. 2 in. in diam., with a slightly funnel-shaped lobe an inch or more long; calyx obsolete. Sumatra.

RHODODENDRON MANGLESII. (*R. H.* 1885, p. 491; *Gfl.* 1883, p. 183.) *H.* A fine hybrid, with very large heads of handsome white fl. Garden hybrid.

RHODODENDRON ROSEUM ODORATUM. (*R. H.* 1886, p. 315) *H.* shr. of hybrid origin, with good sized heads of pale rose-coloured fragrant fl., of rather small size. Garden hybrid.

RHODODENDRON SMIRNOWI. (*Gfl.*, t. 1226, f. 2 d-g.) *H.* shr., with obtuse l. 3½-4½ in. long, white-tomentose beneath, and clusters of purple fl. The very small calyx-lobes are as broad as long, and the stamens are shorter than the corolla and hairy at the base; ovary tomentose. Caucasus.

RHODODENDRON UNGERNI. (*Gfl.*, t. 1226, f. 1, a-c.) *H.* shr., with obtuse apiculate l. 4-6 in. long by 2-2½ in. broad, and clusters of white fl. often tinted with reddish outside. Stamens hairy in the middle. Calyx-lobes $\frac{1}{2}$ in. long, narrow lanceolate. Caucasus.

RHODOSTACHYS ANDINA. (*R. H.* 1885, p. 540, f. 95, and with plate.) Bromeliaceæ. S. This is the handsome plant, better known as *Bromelia longifolia* and *B. carnea*. Chili.

RIHUS COTINUS, var. *PENDULA.* (*R. H.* 1885, p. 554.) Anacardiaceæ. *H.* shr. An ornamental form, with drooping branches. Garden variety.

RYNCHANTHUS LONGIFLORUS. (*B. M.*, t. 6861.) Scitamineæ. S. per. of botanical interest. Rootstock tuberous. Stem 18 in. high, with 10-12 distichous, lanceolate acuminate green l., 6-8 in. long, 1½ in. broad. Spike few flowered very lax, bracts an in. long, reddish. Fl. yellow, with green-tipped lobes, the lip reduced to a mere point at the base of the stout boat-shaped filament. Burma.

ROBINIA DECAISNEANA. (*R. H.* 1886, p. 7.) Leguminosæ. *H.* tree. A floriferous form of *R. pseudo-acacia*, with large clusters of rose pink fl.

RONNBERGIA COLUMBIANA. (*B. H.* 1885, p. 82.) Bromeliaceæ. S. Bromeliad, with a rosette of very coriaceous, arched, wavy, smooth l., of a dark green above, violet-brown beneath, bordered with small teeth. Fl. stem a ft. high, with membranous brownish bracts, and a short spike of hypocrateriform dark blue fl., with a white tube. Columbia.

(To be continued.)

NEWCASTLE SPRING SHOW.

ON the 20th and 21st inst. the Spring Show of the Durham, Northumberland, and Newcastle-upon-Tyne Botanical and Horticultural Society was held in the Corn Exchange and Town Hall in Newcastle, and at no previous Show has the Society had such a grand success. Stove and greenhouse plants were not so numerous as in previous years, but the first prize plants were splendid. The Hyacinths were exceptionally good. Azaleas, Deutzias, Lily of the Valley, Cinerarias, Spiræas, and other spring-flowering plants were above the average. Anemones, which are increasing in popularity, were exceptionally good. Table decorations were extensive and tasteful, and a new class was provided for ladies' sprays, which produced a spirited competition.

PLANTS.—In the open division the Society offered £11 for four plants, dissimilar. Mr. F. C. Ford, gardener to Mrs. Henry Pease, Piermont, Darlington, was first with splendid examples of *Erica Victoria Regina*, *Tetralthea hirsuta*, *Clorodendron Balfourianum*, and *Cœlogyne cristata*, over 4 feet 6 inches across, and covered with its charming white flowers. Mr. J. R. Metcalfe, gardener to R. S. Donkin, Esq., Camp Villa, North Shields, was second, Mr. Neil Black, gardener to Miss Pease, South Hill, third, both exhibiting well. For four Azaleas Mr. F. C. Ford was first with beautifully trained symmetrical plants of *Annette*, *Perfection*, *Stella*, and *Madame Vervane*, the latter very good. Mr. J. Short, gardener to H. Pease, Esq., Hummersknot, with fine plants (unnamed). Mr. W. R. Armstrong won the chief prizes for *Dielytras* and *Cytisus*, Mr. J. Marris for *Spiræas*, Mr. J. Marris for remarkably fine *Cinerarias*, Mr. J. Watson for *Lily of the Valley*, and Mr. E. Adams for table plants. In the amateurs' division Mr. F. C. Ford was first with Azaleas, Mr. J. R. Metcalfe with *Acacias*, Mr. J. Purton with *Dielytras*, Mr. J. Short with *Spiræas*, and Mr. Forsyth with *Cinerarias*. There were good exhibits in every division in this class.

AURICULAS.—These were considered much better than usual, and some of the exhibitors determined to "go south" to try their luck. For twelve Auriculas, Alpines excluded, Mr. H. White, Killingworth, was first, Frank Simonite, Lord of Lorne, Dr. Kidd, Beauty, Ajax, and George Peabody being very fine. The latter was also awarded the premier prize for a single Auricula. Mr. W. A. Adams was second with a very good stand, which contained a seedling named *Jubilee*, of much promise. Mr. H. White was also first, as well as for a single grey-edge variety. For twelve Alpines, not less than seven varieties, R. Atkinson, Winton, was first with *Dadem*, *Selina*, *Sensation*, Mr. Dodwell, Edith, King of the Belgians, Maud Brown, &c. Mr. White was second. For six Polyanthus, Mr. W. Stobb, Winton, was first with *George IV.*, *William I.*, and *Jubilee*. The Polyanthus were not so good as in former years.

HYACINTHS.—For twenty-four Hyacinths, Mr. W. J. Watson, Leham, took the first prize, which he has done several years. Twelve varieties were

exhibited, and his stand was much admired. Not only were the spikes very large and good, but the foliage was a rich green, and not too much drawn. The following were his best flowers:—Mont Blanc, Lord Derby, La Graudesse, Koh-i-noor, Bloudin, Pabola, General Havelock, and Von Schiller. Mr. J. McIntyre, gardener to Mrs. Gurney Pease, was second, and Messrs. Henry Dewar & Co. third. The latter were splendid flowers, some persons considering they ought to have been second; but the foliage was rather drawn, hence probably the award of the Judges. For twelve Hyacinths Mr. Watson was again first with similar varieties; Mr. J. Punton second; and Messrs. H. Dewar & Co. third. In the corresponding class for twelve Hyacinths Mr. J. Wood, gardener to H. N. Middleton, Esq., Fenham Hall, was first, and Mr. J. Punton second, both of these stands containing examples of good culture that could not be easily surpassed.

CUT FLOWERS AND TABLE DECORATIONS.—For twelve Camellias Mr. J. Wood was first; Mathotiana Alba, Jubilee, Alba Plena, and Imbricata being very fine. For twelve bunches of Rhododendrons Mr. F. C. Ford was first, Countess Haddington being the predominating variety. Mr. J. Short was first with Azaleas in bunches, very superior. For Roses Mr. J. Wright was first with grand blooms of Maréchal Niel. Pansies were never shown so well at this time of the year in the north; Messrs. A. Bailey & Sons, Southwick, Sunderland, were first for Show varieties, and Mr. Thomas Battensby, Blaydon, for Fancy. The epergnes and bouquets were most tasteful. For drawing-room epergnes Mr. Geo. Webster, Stockton Road, Sunderland, was first with a neat arrangement consisting of Dendrobium densiflorum, Narcissus poeticus, Spireas, Cattleyas, Encharis, and Azaleas, all very effectively blended and relieved with Ferns. Mr. W. R. Armstrong was second with a very good epergne approaching to the first in merit. For the bridal bouquet Messrs. Perkins & Son, Coventry, were first with an arrangement of Camellias, Cœlogyne cristata, Lily of the Valley, Eucharis amazonica, &c. For a hand bouquet Mr. J. R. Chard, Brunswick Nurseries, London, was first with a bouquet where choice flowers, skill, and good taste were employed. In the ladies' spray Messrs. Perkins & Son were first with an effective arrangement of Lily of the Valley, Cœlogyne cristata, Azaleas, and Ferns all effectively combined. In the amateurs' division Messrs. Battensby and Douglas were the prizewinners for epergnes and hand bouquets respectively.

A grand stand of Clematises, not for competition, from Messrs. R. Smith and Sons, Worcester, attracted much attention; Mr. J. Wardle, nurseryman, Collingwood Street, Newcastle, showed a good stand of stove plants; Messrs. Fell & Co., Hexham, a choice collection of hardy and coniferous plants adapted to towns; and Messrs. Wood & Sons, nurserymen, London, horticultural manures and specialties.

The various objects were beautifully arranged; and the Staging Committee, the Treasurer (S. Gray, Esq.), the Secretary (Mr. J. J. Gillespie), are to be congratulated on the success of their well-merited efforts.—B. C.



HARDY FRUIT GARDEN.

FRUITING NEWLY PLANTED TREES.—Many of the pyramidal and bush-shaped fruit trees supplied by nurserymen are well furnished with fruit buds, and usually attempt to perfect a crop of fruit during the season following planting. Those with few other trees especially are tempted to let them fruit to their fullest extent, but in most cases no greater mistake can be made. Not only do the majority of the transplanted trees fail to perfect any appreciable quantity of fruit, but the attempt ends in their being seriously checked and stunted in growth. The wisest course to pursue with these young trees is to either remove the greater portion of the bloom at once, or else, after the fruit is set, to pinch all but sufficient to test the variety. Late-planted trees should have no fruit left on them, but two or three on those planted in the autumn will not injure them. Pigmy trees are rarely of any value in a garden, and the aim of every cultivator ought to be in the direction of quickly forming good-sized trees. Induce the new trees to grow strongly; they can be brought into a fruiting condition easily enough. Newly planted fruit trees of any kind ought to receive a summer mulching of strawy manure, and if a long spell of hot and dry weather is experienced an occasional soaking of soft water at the roots, as well as frequent syringings, will greatly benefit them. Any trees that have been stunted by premature cropping may yet be induced to grow out of it if lightly cropped and assisted by surface manurings, those against hot walls especially needing this, as well as abundance of water during the summer.

RASPBERRIES.—The cultivator who is fortunate in procuring strong canes for planting frequently imagines he may safely take a crop from these at once. They will bear the first season after planting, but the consequence is a failure the second year. The strongest as well as the weakest planting canes ought to be cut down to within a foot of the ground in order to cause them to push up strong suckers, which will develop into fine canes for fruiting next year. When well established they may be topped at from 3 feet to 5 feet in height, or according to their vigour and the method of training adopted. The autumn fruiting varieties should be cut down to near the ground, the fruit being abundantly produced on the young canes formed the same season. If freely thinned out during the summer the majority of those canes reserved will fruit at every joint from near the ground upwards. No stakes are necessary for these.

AMERICAN BLACKBERRIES.—These have failed in many gardens owing to not being cut down as advised in the case of newly planted Raspberries. When the ripened canes are allowed to fruit the produce is usually disappointing, there being insufficient roots to support it, and as all the plant's energies are expended on the fruit no canes for fruiting the following year are formed.

LATE STRAWBERRIES.—In order to prolong the supply of Strawberries plantations are made on north borders. As far as our experience goes the late sorts are not sufficiently hardy for these very cold positions, the past winter again destroying the whole bed. This will prevent our keeping up an unbroken supply of fruit, but we hope to have occasional pickings from bedded out forced plants during September and to the end of the year. Vicomtesse Hericart de Thury, La Grosse Sucrée, Princess of Prussia, and even the old Keens' Seedling can all be made to perfect two crops of fruit in one year. According as the earliest and successional batches of forced plants are cleared of their fruit they should be transferred to frames, kept well supplied, and gradually hardened off. When they are sufficiently hardy to stand all weathers they may either be planted out in a bed of rich soil, or the pots may be plunged deeply in the borders and the roots encouraged to spread into the surrounding soil. We only keep those in pots we propose to lift in September or early in October, and these being cleared of loose roots and soil can be stood on shelves in a cool house where the fruit, already set, will ripen in November and December. The earliest forced will ripen the second crop of fruit in the open ground. They must have abundance of water, especially till such time as they have become well established in the fresh soil, and for this and other reasons it is advisable to plant in the borders near the walks. The planting ought to be done firmly.

FRUIT FORCING.

PEACHES AND NECTARINES.—Earliest Forced House.—The fruit is swelling rapidly; in fact, that of the very early and very valuable varieties, Alexander and Waterloo, are well advanced in ripening. Those must not be syringed, but the other varieties, such as Hale's Early, A Bec, and Royal George, should be finally thinned, removing the smaller fruit where the crop is favourable, before any great advance is made with the last swelling, or it will be of little advantage to those remaining. The shoots must also be well tied in, so as to give the fruit all the sun and air possible for its colouring, and if the leaves shade it they must be drawn aside or removed. See that there is no trace of red spider, or if there be, apply an insecticide, and syringe forcibly, directing the water against the under side of the leaves. Syringing, however, must be discontinued when the fruit is beginning to ripen, and the supplies of water must be lessened from that time. When the fruit is ripening, some netting may be placed below the trees—suspended of course, and in pocket-like fashion, so as to prevent the fruit running and injuring each other. Fruit allowed to become dead ripe and fall is not nearly so piquant and good in flavour as that carefully gathered when fairly ripe and allowed to rest in a fruit room for a time.

Houses Started at the New Year.—The fruit in these is rather later than usual, but the crop is excellent, particularly of Royal George Peach and Elruge Nectarine. Hale's Early is also first-rate, but Grosse Mignonne, though there is a crop, is not nearly so good. The fruit has nearly finished stoning, but it does not do to hurry on the crop until that is known to be affected, which can be determined by trying a few fruits with a knife. Until then a regular temperature of 60° to 65° at night, and 70° to 75° by day is sufficient, but the stoning completed, and the ripening accelerated, the temperature may be kept at 70° to 75° artificially, falling 5° at night, and keeping through the day at 80° to 85°, closing sufficiently early in the afternoon so as to rise to 90° or 95°, and employing plenty of moisture, that over the trees being given sufficiently early to allow of their becoming dry before nightfall. In this with thorough supplies of water or liquid manure and a surface dressing of short manure the fruit will swell to a great size. Place the fruits with the apex to the light, and the leaves must be drawn aside or shortened, so that the fruit will have the benefit of the sun for the colouring process. Give the final thinning directly the stoning is effected. Tie in the growths as they advance, keeping them thin. Ventilate early and leave a little on at night. It is very unwise to push trees in the dark, and keeping in a close moist atmosphere causes soft wood and long-jointed, this more especially in dull weather and at night.

Houses Started Early in February.—The trees in these have progressed very satisfactorily. The fruits are the size of Walnuts, and the fruit should be reduced to few more than is required for the crop. Tie in the shoots, encouraging no more than is necessary to furnish next year's bearing wood and the extension of the trees. Shoots retained above the fruit to attract the sap to it should be pinched to a few joints; the chief thing is to get stout, short-jointed, thoroughly solidified wood, and to allow it plenty of light and air. Ventilate early, increasing it with the solar heat, having it full at 70° to 75°, a night temperature of 55° to 60° being suitable, and 60° to 65° by day by artificial means. Commence ventilating from 65°.

Houses Started in March.—Trees that were started early in that month have set well, and the fruit being fairly swelling remove the surplus fruit, commencing with the badly placed—i.e., on the under side of the trellis; it is well, however, in all cases to wait a short time until it is seen which fruit takes the lead in swelling. Disbudding must be continued until the growths are reduced to the number required for next year's fruiting—i.e., a shoot from the base of the current bearing

wood, leaving those on extensions 15 to 18 inches apart, and allowing that distance between the extensions. Train all shoots in their full length as far as space permits. Be careful to retain a shoot on a level with or above the fruit to attract the sap to the fruit. This, unless an extension, should be pinched at the third leaf, and to each succeeding joint of growth. A temperature of about 55° at night will be sufficient, and 5° to 10° advance in the daytime. Ventilate freely above 65°. Attend to tying-in the shoots so as to give the necessary incline to the growths, but avoid close tying, and especially tight tying, being careful to allow plenty of room for the swelling of the shoots. Syringe twice a day, and be careful not to let the trees lack moisture at the roots.

Latest Houses.—The trees are in full blossom. The blossom is sure to set, as the bees are busy with the flowers, sipping the nectar and brushing the pollen on the stigmas. Enough fire heat must be used to maintain a day temperature of 50° to 55° with a little air on top and bottom, and at night frost must be kept out, a temperature of 45° being desirable with a little ventilation. Ventilate freely above 55°, and do not allow 65° to be exceeded without full ventilation. A genial condition of the atmosphere can be secured by damping the borders and other available surfaces, but not the trees, in the morning and early afternoon. In unheated houses it should be done in the morning only, and not then if the weather be dull. The chief thing in these structures is to secure a well ventilated atmosphere in the early part of the day, to have the border well supplied with moisture, but presenting a somewhat dry surface, and to close before the temperature is much reduced, so as to enclose a moderate amount of solar heat. We find that with due regard to early ventilation, continuing it until 5 P.M. or later, that on closing the walls, &c., give out heat, and the atmosphere being dry the blossom is safe. It is moisture that makes the difference between a good set and a bad one, and also between safe and unsafe from frost. Water if needed in such structures should be given in the morning of a fine day, so that superfluous surface moisture may be dissipated before night.

Insects.—Aphides and insects infesting fruit trees, forced or otherwise, come with east winds. Fumigate upon their first appearance. Nothing is so disastrous as fumigating when the trees are in blossom, or carelessly afterwards. If the houses are fumigated before the flowers expand there will be no trouble during that period, and afterwards the appearance of one aphid should be the signal for having the foliage dry, and fumigating upon the first calm evening. It must be done carefully, or the foliage and fruit will suffer. Better fumigate on two or three consecutive evenings than jeopardise the present and a future crop by an excessive supply. Nothing reaches aphides so effectually as tobacco smoke. If syringing fails to dislodge red spider promptly assail it with an insecticide. All those advertised are efficacious if care be taken to follow the directions. It detests a solution of softsoap, 2 ozs. to the gallon, and so does mildew, equally with flowers of sulphur. Apply the latter to the part affected with mildew.

THE FLOWER GARDEN AND PLEASURE GROUNDS.

Sowing Annuals.—Stocks and Asters of sorts, Zinnias, Dianthus, Phlox Drummondii, Marigolds, and Tagetes are most surely raised under glass, but the seed also germinates quickly if sown on the surface of a spent hotbed and protected with mats. All the seedlings when in rough leaf should be pricked out either in boxes or beds of good light soil and protected for a time, being finally transplanted before they have spoilt each other. If yellow Calceolarias have failed it is advisable to sow seeds of the miniature African Marigolds and also Tagetes signata pumila. These soon grow to a good size in pots or boxes of good soil, and are very showy in the beds. Dell's Crimson Beet is a good substitute for Iresines, and the seed may either be sown thinly in boxes of light soil or where the plants are to grow. They transplant readily where needed, and an even row is very effective in a ribbon border—say at the back of a bronze or yellow-leaved Zonal Pelargonium. Perilla nankinensis may yet be sown, and the Zea japonica or Japanese Maize can be quickly raised in a little warmth, this beautiful plant being very effective either in mixed beds or at the back of broad borders. If Mignonette cannot be raised in the open sow a few seeds in 3-inch pots filled with good soil. It will germinate quickly in gentle heat, and the plants may be transferred to the borders before they are root-bound. Sweet Peas may be soaked for a few hours in water and sown in small pots, and from these can eventually be transferred to the mixed borders. This is the surest method of raising the many new and beautiful varieties now being distributed. Chamæpseuce diacantha and Cassabonæ raised in heat do not always pot off readily, and it is advisable to place the pans or pots of seedlings on a greenhouse shelf for a few days prior to potting them singly into 3½-inch pots. Seedling Dahlias may be potted off singly or pricked out in boxes, from which they transplant readily. Antirrhinums and Pentstemons, if not kept too long in the seed pans, but are pricked out thinly in boxes of good soil, or in a bed of soil under glass, soon grow to a good size, and being duly planted out will flower strongly late in the summer. The noble Castor oil Plants can be raised from seeds in a few days, and being potted singly into 5-inch pots are quite large enough for planting out early in June. The gorgeous Poppies, Godetias, Calliopsis, Candytufts, Cornflowers, Clarkias, Chrysanthemums, Convolvulus, with Ornamental Grasses, Larkspurs, Linums, Lupines, Eschscholtzias, Mignonette, Sweet Peas, Tropæolums, Virginian Stocks, and other half-hardy annuals ought now to be sown in the open borders. Sow the seed thinly in circular patches, and cover with a little fine soil. If the seedlings are at all crowded they should be freely thinned out or the display will be a brief one.

Hardy Biennials and Perennials.—Seedling plants of the border

Carnations and Picotees give a wonderful profusion of flower, so much so in fact as to quite spoil them for a second year. April, or not later than the first week in May, is a good time to sow the seed, this being done thinly in sandy loamy soil and the pans or boxes stood in very gentle heat. The seed will germinate in a cold frame, but we prefer to utilise a half-spent hotbed for raising Carnations as well as other plants that will be named below. When of good size the seedlings may be either pricked out thinly in boxes of good soil or be potted singly. When large enough to stand all weathers they are planted in raised beds in a sunny position, and there they soon grow into fine stocky plants. Pinks are quite as easily raised from seed, and, as far as vigour is concerned, seedlings soon surpass those raised from cuttings or pipings. Sweet Williams sown now in a cold frame, and finally planted out before they spoil each other, will give a good display next summer; and we also sow hardy Primulas and Polyanthus late in April, and these given the benefit of the shelter of glass are soon strong enough to plant out. Alpine Auriculas may also be sown and treated similarly to the Primulas. Campanulas medium calycanthema and pyramidalis ought to be sown under glass, and the seed only lightly covered with fine soil. The seedlings should be first pricked out in boxes and then transplanted to the open borders, allowing each plant not less than a foot of ground. In the autumn a number of them may be potted up and wintered under glass. These can be either flowered in pots, or in the event of those left outside being destroyed by very severe frosts, they may be planted out again. The first named are the earliest to flower, but both are very showy and beautiful.

THE BEE-KEEPER.

PRACTICAL BEE-KEEPING.—No. 9.

GREAT mischief is often occasioned in the apiary by ill-advised stimulative feeding in the early months of spring. Stocks properly prepared in the preceding autumn do not require any stimulation whatever, unless in very exceptional circumstances, in order to ensure a strong surplus population in May. But in spite of every effort to show how much may be done one year to ensure success in the succeeding season there will always be stocks in every district which, either from wanton neglect or mishap in the autumn, are not sufficiently forward in the following spring. I have tried stocks side by side for the last four years, prepared in the same way at the same time; half have been fed gently in spring, the other half have been left severely alone. Possibly the former have had an advantage of a few days, but as even the latter are ready to work in supers on or about the 25th of April there is no great advantage gained, since the honey flow does not set in until the last week in April, in securing these few extra days, unless we have some particular purpose other than securing the greatest possible amount of honey in view.

To those who have prepared their stocks in autumn I would say, "Do not stimulate;" the trouble is considerable, the expense is more than trifling, and there is a danger of doing great and irreparable injury. In some seasons the best and strongest of stocks will be later than usual in arriving at the state when they are ready for supering, but if the bees are late the flowers and blossoms which yield the honey will also be correspondingly late. In spring stimulative feeding carefully and judiciously carried out does no harm, but this is a very negative quality. We, of course, expect some adequate return in the increased yield of honey for our labour; but the greatest care and attention must be paid to even trifling circumstances if actual loss is not to follow our attempts to force the queen to extend the brood nest more speedily than her own instinct or that of the bees tells her or them is good for the stock. After thus warning all those that think that stimulative feeding in spring is advantageous, I will proceed to show when and how it may be carried on with profit. In the month of March a stock is occasionally seen which,

although working on fine days, does not seem to have the same number of bees as the stocks on either side. Pollen may not be carried in so freely. The brood nest is extended more slowly, and the stock does not seem to make the progress which we have a right to expect, and yet the queen may be in the prime of life and vigour.

Again, there may be a stock in which the food supply has been rather short, and the patches of brood raised in the two preceding months are therefore very small. In such a case many advise syrup sufficient to last for two months to be given at once, and then all feeding to be stayed. From such advice I dissent. In short, whenever a hive which has been carefully prepared in autumn does not seem to make satisfactory progress—whenever a hive has been neglected in autumn, and therefore will, we know, unless extra precautions are taken, be later in arriving at the time when there is a population large enough to work in supers—then stimulative feeding may be resorted to as a means of rectifying a present evil. A stock, then, in March seems to demand extra care and attention, and we determine to feed it gently until honey comes in freely. We must first take care to see that the combs contain at least 10 lbs. of honey, and if they do not contain that quantity syrup must be given at once to make up the deficiency. After this has been supplied gentle stimulative feeding may be commenced, using the small bottle feeder described in the last article, and known to every bee-keeper in this country. Special care must be given to four points when stimulative feeding is contemplated.—

- 1, The brood combs must never be "glutted" with honey.
- 2, If the weather is severe stimulative feeding must on no account be commenced.
- 3, Hive and feeder must be wrapped up as warmly as possible.
- 4, When once commenced it must be regularly continued every day.

In small hives the first point demands special attention. A stock on ten standard frames may be seriously injured if too great a quantity of food is contained in the combs in spring, because the queen has, even if every cell was available for brood, not sufficient room, and therefore every cell unnecessarily occupied by honey is an evil. In larger hives the same attention must be paid to this point, unless honey is being used for feeding purposes instead of syrup, especially if it is intended to extract from the combs the surplus. We must take care never to sell syrup, even by accident, and call it honey!

It is often said that stimulative feeding should be commenced in March; this is most dangerous advice. The time for beginning to stimulate must be entirely regulated by the weather. Early in March in some seasons this stimulation may be commenced, while in other seasons it would be most hazardous and almost impossible to interfere with a hive before April. If the weather about the second or third week in March is open and mild an effort may be made at once to induce the bees to extend their operations. If the weather is severe we must wait until it becomes mild and open, and then begin to feed. This year I have been making some experiments relative to stimulative feeding, which shall when the result is determined be described. Hives and feeders must be very warmly wrapped up, and there must be no escape of heat from the top of the hive. A feeder if badly placed on the hive will allow a great and injurious escape of heat, and the stock will therefore be retarded rather

than advanced. If a stock is to be fed each day the following method is a simple and easy one to adopt. Over the feed hole a piece of perforated zinc should be placed; on the top of this a quantity of warm material—old pieces of carpet, anything that can be pressed into service—cutting a hole in each piece just large enough to allow the bottle to pass through it, and laying these pieces on the zinc, there to remain permanently until feeding is over and the super takes place of the feeder. When the feeder is in position another small piece of carpet with a still smaller hole should be taken and pressed over the top of the bottle until it arrives at the neck, thus effectually preventing any escape of heat which the other pieces might allow. With a feeder so managed all the heat of the hive is retained, especially if the whole feeding apparatus is covered with some heat-retaining material; and feeding is done without disturbing the bees and without the slightest inconvenience to the bee-keeper. Two ounces a day is sufficient for every stock which has a good supply of honey, and if managed on the system here advocated every stock will have a good supply, even independent of the dribblers thus to be administered.

It has been said that stimulative feeding in spring causes the loss of many bees by exciting them to fly when the weather is unfit for flight. I have not found this to be the case in spring, for when the season is advancing all stocks in my apiary go forth to labour even when the day is cold and it would be better for them if they stayed within. In spring the common bees will go out when possible, and their loss is, I believe, not so great as it is believed to be by many. In autumn stimulative feeding is, I believe, absolutely and entirely injurious. It is expensive and troublesome and dangerous; it incites to robbing, disturbs the bees when Nature leads them to save their energy, and so prolong their lives—thus insuring the safe wintering of the stocks. A little brood is raised at the loss of many bees which would have survived the winter. The queen is overdone, and consequently commences egg-laying in the following year; the expense is considerable, the labour great, and the result no better than that which follows from a management which enables a man in a few days to supply the food requisite to strengthen his stocks and pack up his bees for winter.

In spring robbing may be induced when feeding is going on by a careless exposure of honey, but in autumn every bee is on the look out for spoils, and a determined attack is sure to be made on every stock if there is the slightest drop of honey left lying about, or syrup to which the bees can obtain access. The trouble often occasioned in autumn by the raids of robber bees is very great, and nothing like it is experienced in spring, but still at all times of the year the greatest possible care must always be taken not to wake in the bees the desire to obtain stores from other hives.

It will be sufficiently apparent, I think, to all that I am not a great advocate for stimulative feeding at any time, although I recognise certain circumstances which may occasionally make it advisable to adopt a system which in other circumstances would be of no benefit to the persons following it out. The only time when stimulative feeding is really profitable is, I believe, when there is a break in the honey flow, and it is necessary at whatever expense and trouble to keep the bees prosperous and happy under adverse circumstances. If honey cannot be got in the fields in April, May, June, and July every stock and swarm should be fed gently, for it is absolutely essential to successful management that there shall be a strong hatch of brood in July, and this there will not be unless

the queen and bees are induced—when a break in the honey flow occurs—to believe that a supply of honey is continually coming in to assist in eking out the stores they have been able to gather in the preceding months. After July every stock should be allowed to become quieter and quieter, no attempt being made to induce bees to rear brood more than in a normal quantity. Winter preparations should be made with all speed, yet with great care and with the exercise of a wise judgment, and then we may rest assured that our stocks are in a better condition for wintering, and, consequently, in spring will be more healthy and strong than those which have been disturbed in season and out of season by the supply of a small quantity of syrup.—FELIX.

FOREIGN RACES OF BEES.

YOUR correspondent, "Notts Bee-keeper," at page 280, still makes an attempt to subvert my statement on the merits of the eastern races of bees. The Ligurian bee was introduced into this country about fifteen years before the Cyprian, and something more before the Syrian, therefore the former had the advantage of better seasons than the latter has yet had. During these good seasons the Ligurians gave me large harvests of honey, while many bee-keepers condemned them as worthless, just as "N. B. K." is doing.

Taking the seasons into account the Cyprians have surpassed every other variety, and, as I stated lately, the Syrians do not appear to lack any of their good qualities. They were the first to begin work and breeding this year, and do so on days that other varieties are not inclined. Yet so sensitive do they appear to approaching storms that they remain indoors when others less sensitive venture abroad, but to be lost. As to their spitefulness and impulsiveness when handled roughly so as to enrage them there can be but one opinion, but they are less vindictive than the common black bee. Moreover, they are the mildest tempered bees when let alone and treated as they should be that I am acquainted with. They never make an unprovoked attack on anyone. The directors of bee shows might do worse than to encourage rational, coupled with humane, manipulation.

Your correspondent brings forward Mr. Abbott as a reliable witness. I have neither seen that gentleman's remarks nor yet Mr. Simmins' latest on these foreign bees, but I remember very well Mr. Abbott's earlier disbelief as well as the glowing description in praise of these bees. Some time before Messrs. Jones and Benton set out to the East in search of varieties of bees Mr. Abbott was so sceptical of their existence that he asked if "anyone had seen them anywhere but on paper," although they had been publicly exhibited by Messrs. Neighbour years before that. When the Cyprian and Holy Land bees were, as it were, forced upon him through these gentlemen, the glowing descriptions he gave of them were so great that it is a wonder any bee-keeper refrained from purchasing them. In a letter I saw sent to a friend by Mr. Abbott they had a similar glowing description of their good qualities, and for their colour, why they were so pretty that many of them "had four yellow bands, and the description given in the *British Bee Journal* about their working qualities was just what I have found them to be; but what was my astonishment shortly after to find them described by that gentleman as "troubling pests." This sudden change of opinion I never heard explained.

When the motives of a witness is known to a judge it enables him to arrive at facts sooner and easier than when they are concealed. Your correspondent's remarks that the black bees "are keener after honey than any other race" will not meet with approval or support from any bee-keeper who has given them a fair trial. They are, in plain speaking, the reverse, and if Mr. Abbott's ("N. B. K.'s" own witness) evidence is taken will go against him. "N. B. K." seems to admit that "these foreigners" are more prolific. Not only are they so, but they begin earlier and breed longer than the blacks do, so that they are at all times, when properly managed, in a fit state to gather honey when an opportunity occurs. When honey is to be had they are the first to scent it out, work more eager when at it, and begin earlier and work later, and on flowers the blacks do not, working on days too when the blacks remained idle. It is problematical whether a large or small bee gathers the most honey. It is results at the end of the season we judge and know the best by, and not individual bees. I have often witnessed the common black bee fill itself so full that they never reached the hive, but never have I observed this in the eastern races. Appearance is often deceiving, and when we think the black bee has a heavier load we may be mistaken. In regard to the Cyprians sealing their honey in a different manner from other bees, I have never observed any difference, but have observed often one hive store a different honey from what the majority were doing. Like "N. B. K." I would like very much to hear the evidence of others who have given these foreign races a fair trial, but I must confess it is unpleasant to enter into controversy with those who have not.

The following is perhaps interesting and *apropos* to the question at issue. On the 19th of March three fruit growers and noted bee-keepers from Clydeside visited me. Two of them were thorough sceptics as to

bees breeding earlier than April. Reasoning would not convince them; and although I showed them many young bees playing at almost every hive (it was the finest day we had had during the month, the thermometer stood at 50° Fahr., and the bees were busy on the peameal) they would not be convinced they were young, but made light in appearance through it. They said they had examined many of their hives before leaving home (black bees they said they had), and there was not so much as an egg to be seen, and their place was more cosy for bees than mine. Argument had no effect, so I opened a hive (the one referred to before in the *Journal* as having lost many bees) the Carniolian queen regnant was put to it in November. When opened half of its bees were Carniolians, and six combs contained sealed brood and many eggs, but owing to the extreme cold all the unsealed larvae had been destroyed. In the centre of these six combs was one mostly of drone cells, but there was not a single egg or brood in it. I removed this comb and substituted a worker comb, then covered and examined another hive having a Syrian queen, but Carniolian bees, the reverse of the first one; it was equally as forward, although the queen is in her second year. A third Carniolian, bees and queen, was similar. Surely if these foreigners are advanced enough to collect honey when the blacks on their own showing had not begun to breed it must be a great advantage to promote the very thing "N. B. K." wishes. In addition to the destruction of the larvae, retarding the hatching through the extreme cold, some young bees have defective wings.

Up to the 9th the weather was very untoward. On two days only had the temperature reached 50°, and the night temperature has run between 23° Fahr., and the highest 27° Fahr. The highest temperature of the year occurred end of March, when the temperature reached to 56° Fahr. Doubtless the extreme cold has kept back the bees greatly, but the mild weather will soon give them an opportunity to increase and be in full strength in time to catch the first glut of honey. Bee-keepers will have to act their part, being careful that the stores do not run short, contracting the entrances, and keeping the coverings ample and close to the hives, so that as little heat as possible shall be lost, and where practicable contract the entrances more during night than through the day when the bees are at work.

Notwithstanding the extreme cold a number of my Syrian stocks are well advanced, and are likely to swarm early. I hope for a good season so that they may be fully tested by those who have an opportunity for the first time. I will watch their movements and record the results at the earliest opportunity.—A LANARKSHIRE BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

A. M. C. Jongkindt Coninck, Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands.—*Wholesale Trade List of Hardy Shrubs and Herbaceous Plants for 1887.*

E. C. Walton, Muskham, Newark.—*Catalogue of Apiarian Appliances.*



* * * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

LATE INQUIRIES.—It is necessary to again remind correspondents that letters arriving on WEDNESDAY MORNING cannot be answered in the "next issue," which is then far advanced for press.

Double Primrose (F. A. B.).—The sport is very distinct from the original, the flowers being decidedly deeper in colour, also full and symmetrical. It is an attractive variety, resembling *Crousse plena*, and is well worthy of preservation.

Cincaria (R. H. S.).—Occasionally the florets come quilled or fluted, and we have seen more than a usual number of such this year. A variety of the same character as yours was certificated at a recent meeting of the Royal Horticultural Society, but the flowers were much finer and richer in colour than are those you have sent.

Mushrooms in Peach House (W. F. S. K.).—Valuable crops of Mushrooms are grown in both vineries and Peach houses, making up beds in the autumn, and successively through the winter—the last about January, for bearing in April and early May. After that the structures are too hot

for Mushrooms. We have seen Mushroom beds made in a vinery long before the Grapes were cut, and, the beds being covered with dry hay, no harm whatever resulted to the fruit hanging on the Vines. We should not hesitate to make up beds in a late Peach house any time after the fruit was gathered and the wood ripening.

Vines Failing (Stockwell).—You have perhaps some reason for supposing the Vines have been tampered with. We can only say there are no insects on the roots sent to account for their deplorable condition. Some of them are quite destroyed, and it is certain they have been in contact with something of a highly deleterious nature.

Figs Withering (W. L. B.).—The condition of the Fig you have sent is due either to want of adequate nutriment or defective fertilisation, or both. As the roots of the tree have entered the red gravelly subsoil you will act wisely by lifting the tree as soon as that can be safely done. It should be planted in turfy loam containing a liberal admixture of old mortar rubbish, the whole to be in the firm, and surface roots encouraged by a dressing of manure for preventing the evaporation of moisture. The growths should be thinly disposed, so that the leaves can develop under full exposure to light, then with adequate liquid support during the season of growth your Figs may be expected to swell to maturity. The Fera will be examined for identification.

Various (R. C. Lee, Kangra).—We should think the best course would be to write to the Agri-Horticultural Society of India, or the Directors of some of the Botanic Gardens. Failing these, you could write to Dr. A. Voelcker, 12, Hanover Square, London. The Apple which you state weighed 1 lb. is not King of the Pippins, but probably Warner's King, which comes even heavier than that occasionally. We do not know a Lily bearing the name you mention. Magazine writers cannot always be relied upon for accuracy of botanical knowledge.

Rose Buds Failing (Bedfordian).—An expert "buddier" with whom we have conferred observes that the budding of dwarfs either from cuttings or seedlings is a much more delicate operation than the budding of standards. In one case the shoot and bark are new and fresh, and the bud may be put in at any time almost; but in the other case we work on bark some years old, and here we have to choose the time very carefully—the earlier in the season the better. The bud must be cut from a plant when the sap is running freely, and the same remark applies to the stock. Uncover a few at a time, tie-in the buds tightly, and few failures should occur. Read the articles on budding now appearing by Mr. D. Gilmour, who has successfully budded many seedling Briars quite as old as yours.

Arranging Flower Beds (A. B. C.).—For some special reason, such as a person having no experience whatever to guide him, and no examples that he could inspect, we occasionally depart from a rule, and you appear to have been favoured in this respect. We are glad to hear our advice was so serviceable, and you can now have little difficulty in making such changes as your taste may suggest, and in accordance with the number of the different kinds of plants at your disposal. If you like to submit your proposals to us they shall have our attention. We have found after long experience that this is the most satisfactory method of procedure.

Ivy and Holly Dying (Harpenden).—The branches sent are dead, but we have no data to guide us in forming an opinion as to the cause of their death. We do not think it is due to insects eating the bark, but, on the contrary, much of it has peeled off naturally through the shrinkage and drying of the stems. We have known both Ivy and Holly rendered so weak by poverty of soil and drought in summer as to be unable to resist the effects of protracted frost and cold, hence collapse in the spring. Rabbits eat the bark of Hollies, and we have known them do much injury, but we scarcely think they have been the culprits in your case. We have also known mice nibble the bark from Vines and different trees, doing much injury. If they abound in your garden they may possibly be accountable to some extent for the condition of the peeled branches.

Azalea mollis (G. W.).—After flowering pick off all incipient seed pods and stand the plants in light position in a greenhouse or vinery, where they can make sturdy growth. They must be well supplied with water, as injury will be done if the roots get too dry. In the course of three weeks, or when mild weather ensues, a cold frame will be a suitable position, and from thence they can be removed to the open air for ripening their wood, plunging the pots in ashes in a sunny position.

White Rhododendron (A. B.).—The variety of which you send flowers is quite distinct from that named on page 270, yours being apparently a varietal form of R. Veitchianum, and your plant with ninety trusses of flowers must be very effective. While Rhododendrons can be kept healthy in the same pots for several years, with good attention in watering and using gentle stimulants, also by occasional top-dressings of fresh soil, removing some of the old, still the plants must be shifted from time to time for the production of large specimens. When repotting is necessary or desirable, this depending on the condition of the plants and roots, it may be done a week or two after the faded flowers are removed, keeping the plants cool in the meantime, so as not to force fresh growth rapidly. It is of great importance that the ball of old soil be moist, without being excessively wet, at the time of shifting, and that the soil to be used be sufficiently moist for compression. It must be made as firm as the old, otherwise the water given will drain from the roots into the fresh soil, and the plant must suffer accordingly. Great care and sound judgment must be exercised in watering after repotting, as if the new soil is permitted to get too dry on the one hand before water is given, or is kept too wet on the other, fresh roots will not take possession of it with that freedom that is desirable for promoting healthy growth. Cuttings of half-ripe wood inserted in sand over a layer of firm peat under bellglasses, kept moist and shaded, in gentle heat, emit roots, though not very quickly. Plants are also increased by grafting on stocks of commoner kinds raised from cuttings, layers, or seed.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry

cotton wool the worst. Not more than six specimens can be named at once. (J. W.).—We do not undertake to name varieties of florists' flowers, but only species of plants, and the Rose you have sent is not a species. Besides, no one could name a bloom so much expauded as yours was on its arrival, the petals falling off as soon as the box was opened, though you had placed a little moss round the stem. (H. E. W.).—2, Adiantum pedatum, 3, An Erythrina, probably Crista-Galli, but we cannot be certain in the absence of flowers. The others were insufficient for determination. (H. May.).—Forsythia Fortunei. (J. C.).—The shrub is Ribes aureum; the Dendrobium we have not been able to determine, as it suffered somewhat in transit.

COVENT GARDEN MARKET.—APRIL 27TH.

BUSINESS improving, and with good supplies all classes of goods are readily cleared. Some good samples of new Grapes to hand.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, $\frac{1}{2}$ sieve	2	0 to 5	Oranges, per 100	6	0 to 12
" Nova Scotia and	0	0	Peaches, dozen	0	0
Canada, barrel 10 0	13	0	Pears, dozen	1	0
Cherries, $\frac{1}{2}$ sieve	0	0	Pine Apples, English,		
Cobs, 100 lbs.	50	0	per lb.	1	6
Figs, dozen	0	0	Plums, $\frac{1}{2}$ sieve	0	0
Grapes, per lb.	4	0	St. Michael Pines, each	2	0
Lemons, case	10	0	Strawberries, per lb. ..	3	0
Melon, each	0	0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Articbokes, dozen	1	0 to 2	Lettuce, dozen	1	0 to 1
Asparagus, bundle	8	0	Mushrooms, punnet ..	0	6
Beans, Kidney, per lb. ..	1	3	Mustard and Cress, punt.	0	2
Beet, Red, dozen	1	0	Onions, bunch	0	3
Broccoli, bundle	0	0	Parsley, dozen bunches	2	0
Brussels Sprouts, $\frac{1}{2}$ sieve	0	0	Parsnips, dozen	1	0
Cabbage, dozen	1	6	Potatoes, per cwt.	4	0
Capicums, per 100	1	6	" Kidney, per cwt. ..	4	0
Carrots, bunch	0	4	Rhubarb, bundle	0	2
Cauliflowers, dozen	3	0	Salsify, bundle	1	0
Celery, bundle	1	6	Scorzonera, bundle ..	1	6
Colewort, doz. bunches	2	0	Seakale, basket	1	6
Cucumbers, each	0	4	Shallots, per lb.	0	3
Endive, dozen	1	0	Spinach, bushel	3	0
Herbs, bunch	0	2	Tomatoes, per lb.	1	0
Leeks, bunch	0	3	Turnips, bunch	0	4

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, dozen ..	9	0 to 18	Fuchsia, dozen	9	0 to 12
Arbor vitae (golden) dozen	6	0	Genista, dozen	8	0
" (common), dozen ..	6	0	Hydrangea, dozen	10	0
Azalea, dozen	13	0	Lilies Valley, dozen ..	9	0
Begonia, dozen	4	0	Marguerite Daisy, dozen	6	0
Cineraria, dozen	4	0	Mignonette, dozen ..	6	0
Cyclamen, dozen	12	0	Myrtles, dozen	6	0
Dracena terminalis, doz.	30	0	Palms, in var., each ..	2	6
" viridis, dozen	12	0	Pelargoniums, dozen ..	9	0
Erica, various, dozen ..	18	0	" scarlet, dozen	4	0
Euonymus, in var., dozen	6	0	Primula sinensis, dozen	4	0
Evergreens, in var., dozen	8	0	Solanums, dozen	9	0
Ferns, in variety, dozen	4	0	Spiraea, dozen	9	0
Ficus elastica, each ..	1	6	Tulips, per dozen pots ..	6	0
Foliage Plants, var., each	2	0			

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Abutilons, 12 bunches ..	2	0 to 4	Lily of Valley, 12 sprays	0	9 to 1
Arm Lilies, 12 blooms ..	3	0	Marguerites, 12 bunches	2	0
Azalea, 12 sprays	0	6	Mignonette, 12 bunches	4	0
Bouvardia, bunch	0	6	Narciss, 12 bunches ..	2	0
Camellias, blooms	1	6	" White, English, bch.	0	0
Carnations, 12 blooms ..	1	0	Pelargoniums, 12 trusses	0	9
" 12 bunches	0	0	" scarlet, 12 trusses	0	4
Chrysanthemums, 12			Parma Violets (French)	2	6
bunches	0	0	Poinsettia, 12 bloom ..	0	0
Cornflower, 12 bunches ..	0	0	Primroses, 12 bunches ..	0	6
Cyclamen, 12 blooms ..	0	4	" white 12 bunches ..	0	9
Daffodils, var., doz. bchs	2	0	Primula (single), bunch..	0	9
Eucharis, dozen	4	0	" (double), bunch	0	9
Gardenias, 12 blooms ..	1	6	Roses, 12 bunches	0	0
Hyacinths, Roman, 12			" (indoor), dozen	1	0
sprays	0	0	" Tea, dozen	1	6
" Dutch, per	1	6	" red dozen	2	0
box	0	0	Stephanotis, 12 sprays ..	4	0
Lapageria, white, 12 blms.	0	0	Tropeolum, 12 bunches	1	6
Lilium longiflorum, 12			Tuberose, 12 blooms ..	1	0
blooms	4	0	Tulips, dozen blooms ..	0	6
Lilac (white), French,			Violets, 12 bunches	0	4
bunch	4	0	" Czar, French, bunch	0	0



THE AGRICULTURAL DEPRESSION.

WHERE to turn, what to do, how to meet the downward tendency of prices for farm produce, is a problem which many a British farmer has in vain tried to solve of late. Farming as so many were without sufficient capital

even when prices were remunerative, they were bound to succumb to the difficulties arising from a depression which has grown in intensity and has become more accentuated year by year. Under such a crisis much suffering was inevitable before any relief from without could be had. The tenant farmer very naturally turned first of all to his landlord, and though his plea for a reduction of rent may not have met with a ready response at the outset, yet when the landlords realised fully the gravity of the crisis the tenants' cry for help was met nobly, reduction after reduction being made till the landlord's income suffered a serious diminution.

Apart from high rents, it is unquestionable that the land was laden with a burden of tithe and other taxes, local and imperial, that could only be supported in prosperous times. Relief from this burden comes to the farmer, it may be slowly, but nevertheless surely. The tithe we are just now paying is comparatively a low one, and the next may fall still lower. The Tithe Bill now before Parliament holds out no prospect of immediate relief, for there is a clause binding all tenants who are now paying tithes under their agreement to continue doing so until the expiration of the term of such agreement or lease. After all, what is the tithe rent charge but a tax upon the land? for if a bill is passed whereby the landlord is made to pay the tithe, he can compel the tenant to pay its equivalent by an addition to his rent. What is really wanted is a practical scheme for tithe redemption, so that the land may be set free from it without serious injury to vested rights.

The payment of income tax under schedule B has remained in force upon farmers, but it has been made recoverable upon appeal if proof could be shown of an insufficient income to meet it. This clumsy and tedious method of procedure will now be set aside if the clause in the budget of last week, rendering it optional for farmers to pay income tax only on the profit, becomes law. If only this should become the principle of all subsequent taxation on farms and farm produce, then, indeed, will farmers have a just and equitable measure of state aid extended to them which will afford them relief from a burden that has become oppressive and therefore unjust.

But it may be said "It is not from taxation we are suffering so much as low prices for our farm produce. We cannot obtain enough money either for our corn or animals to enable us to meet our engagements, or in other words to pay our way." Such an argument as this opens up the entire question of good and bad farming, and we are at once disposed to inquire into practice and results. These are not times for fanciful practice; rigid economy must obtain if we would have farming answer. Some three months ago we purchased a score of bullocks fresh and tolerably forward in condition to consume a certain quantity of roots, straw, and corn. This has been done, and the bullocks are almost all sold, the transaction proving fairly profitable under our guiding principle of small profits and quick returns. Calling at a tenant's farm a few days ago we were shown a yard of medium-sized bullocks worth about £15 apiece. We advised an immediate sale, as we were told they were having cake regularly, but the owner said, No; he should not sell them till July, as he had set his heart upon having at least £20 apiece for them. It is true enough that cake is cheap, and we are now able to purchase our favourite Waterloo round cake for £7 10s. per ton, but we have found it answer best generally to avoid the purchase of cake and to fatten with home-grown food. Pulped roots, crushed Oats and Beans, chaffed hay and straw carefully

mixed, will fatten any live stock. Far better is it to do this than to sell Beans at 32s. a quarter and Oats as low as 12s. to 14s.

We have some difficulty to overcome the prejudice which exists against using Oats for fattening pigs in Barley-growing districts. In Sussex, Oats ground or crushed are in high favour for fattening chickens as well as sheep, pigs, and bullocks, but in Kent and the eastern counties barleymeal is used for pigs in preference to Oats. Custom and habit tell in such things much more than any knowledge of the relative fattening properties of the different kinds of corn. Under the Woburn experiments sheep were found to fatten best upon a diet consisting principally of Wheat, yet we have been told repeatedly by men whose lives have been spent among farm stock that Wheat was a dangerous article of food for animals, often proving fatal to them.

WORK ON THE HOME FARM.

Barley sowing has this year extended from the middle of February to the third week in April, the early sowings being long in the soil before growth was perceptible; but the late sowings have been followed by speedy germination, simply because the land was ploughed and sown at once before the soil became dry. The late sowings were on land where sheep had been folded upon late Turnips or Swedes, and we have no reason to suppose that the Barley crop will not be as good in quantity and quality as from that sown earlier in the season. Well is it, however, to get forward with work always, for the advancing season brings a pressure of work with it. Upon most farms land intended for Swedes and early crops of white Turnips is now being prepared for cropping, so that there may be but little to do to it but the sowing when the season for doing so arrives, and when we may be busy with the haymaking. The rolling of winter and early spring corn has now been done, and the horse hoes are at work between the winter Beans, of which so many plants have been killed by frost that farmers will have ample opportunities to judge between the merits of thick and thin seeding. The Rye upon which the ewes and lambs are folded was fully a foot high last week, and if warm showers set in we fear some of it will be in ear before the sheep have finished it. Second year Sainfoin has grown so fast that it was available for folding a week ago had we wanted it. This is a most valuable fodder crop wherever it answers. We mention it here because of the importance of every early green crop in spring. We cannot, however, too often repeat that earliness of growth depends very much upon having the soil well stored with fertility. For example, on our home farm the Rye on rich land is wonderfully early and abundant; on an off farm, where it was sown on poor land, it is not yet ready for the sheep. Several of our cart mares have foaled, and the foals are without exception healthy and strong. A surplus stock of young horses led us to pay some attention to recent horse sales, and we found the average price of two-year colts coming to hand for work this spring is about £15.

"FARM, FIELD, AND FIRESIDE" is the title of a new penny agricultural, rural, and domestic journal that has been sent to us. It consists of twenty-four pages of letterpress, and includes a good assortment of articles on the subjects indicated, and others of a nature interesting to persons engaged in home pursuits. It is published at No. 7, Essex Street, Strand, London.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain	
1887. April.		Barometer at 32° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature		
			Dry.	Wet.			Max.	Min.	In sun.		On grass
Sunday	17	31.722	40.1	36.2	N.E.	42.8	53.4	26.2	76.4	21.8	—
Monday	18	30.523	41.5	39.9	N.E.	42.2	61.7	31.0	101.7	25.2	—
Tuesday	19	30.324	54.8	46.2	N.W.	43.5	68.2	43.2	113.4	33.7	—
Wednesday	20	30.154	51.6	45.3	W.	44.9	61.8	38.1	108.4	29.4	—
Thursday	21	29.955	47.5	44.4	N.	46.3	61.7	37.9	100.4	32.2	0.012
Friday	22	29.591	52.9	48.9	W.	46.8	61.4	45.1	104.7	38.8	0.032
Saturday	23	29.362	51.3	48.3	S.W.	47.2	59.7	45.8	103.7	41.4	0.220
		30.091	49.0	44.3		44.8	62.0	38.2	102.0	31.8	0.264

REMARKS.

17th.—Frost early, fine bright day.

18th.—A glorious spring day.

19th.—Fair early, at times overcast, fine later; bright afternoon and very warm.


20th.—Fine, bright, and very warm.

21st.—Dull and overcast early, fine and bright towards noon; fine afternoon, clearing over at times; a little rain in the night.

22nd.—Generally cloudy, slight showers in evening and night.

23rd.—Showery early, bright after 10 A.M.

A bright, warm, dry week, all the rain having fallen at night. Temperature about 6° above that of the preceding week, and nearly 2° above the average. The minimum on the 17th was exceptionally low, and the range of temperature (42° in the shade unusually great.—G. J. SYMONS.)



COMING EVENTS

5	TH	Linnean Society at 8 P.M.
6	F	
7	S	
8	SUN	4TH SUNDAY AFTER EASTER.
9	M	
10	TU	Royal Horticultural Society. Fruit and Floral Committees at 11 A.M.
11	W	

THE PREVENTION AND DESTRUCTION OF INSECTS.

GARDENERS and cultivators of plants, trees, and crops generally have many enemies to combat, and must ever be on the watch to prevent some of them stealing a march and taking a firm position from which they cannot be dislodged without injury, not to themselves alone but to the possessions on which they have seized. Insects in various forms

start into life with the same regularity that leaves unfold in spring, and those insects fight for existence with a determination that often leaves them victors.

The increase of insects leads to the ruin of plants and crops, disquietude of minds, and the emptying of purses. The waste is enormous, and if it were possible to estimate the amount of damage done, with the outlay incurred in the general warfare against the enemy, it would be startling in its immensity. Undoubtedly one of the most important duties of the gardener is to mitigate as far as it lies in his power to do so the great evil wrought through insect agency, and it is certainly in the interest of the owners of gardens to give all the assistance they can in furtherance of that object.

There is no greater mistake made in gardening, and unfortunately few more common, than to lightly ignore the presence of one or two insects. It is no more safe or prudent to do so than to pay small regard to the outbreak of a fire in a warehouse of valuable combustibles. The first spark if seen may be stamped out easily, but hesitation is fatal. It is the same in respect to insects. Let the first arrivals remain undisturbed, on the ground that such a few cannot do much harm, and it is "not worth while wasting tobacco or other insecticides on them," and injury if not ruin to the plants and crops will be inevitable. The greatest calamities have followed from underrating the strength of the enemy, and permitting the aggregation of units till they grow into a mighty force. This is precisely what is done and permitted yearly in greenhouses and gardens all over the land. The first few aphides are weak and easily subdued, but allow them a few days' freedom and they will entrench themselves so firmly and increase with such rapidity as to become a formidable foe.

To allow insects to multiply into a devastating swarm is both costly and cruel—costly because the deplorable results in the form of half-spoiled Vines, fruit trees, and plants represent a great waste of wealth; and because a far greater outlay must be incurred in insecticides and labour in applying them to prevent total ruin, that originally would have insured a profitable return in the realisation of healthy plants and profitable crops. It is

cruel to even passively encourage the increase of insects, and then, as must be the case, engage day by day in the miserable work of carnage—it cannot be otherwise designated. It is cruel to the plants and trees also, in having their life blood drained away by the enemy that has been suffered to infest them, and which might have been prevented if the requisite means were provided and promptly applied. The owners of gardens are responsible for providing the means, the managers for their application.

Insects have often gained the mastery over gardeners through the mistaken policy of waiting till plants and trees are seriously infested before even "ordering" insecticides for their extirpation. Such delay on the part of those owners of gardens who themselves order what is needed is a serious mistake; in the case of gardeners who can provide themselves with every requisite it is inexcusable. A shilling spent in insecticides early in the season, and the powder or solution applied when the first insect is seen, or what is better before, as a preventive, will effect the desired purpose far better than can be accomplished by an expenditure of 20s. after the shoots of trees and plants are crowded with aphides, which, further, by puncturing the leaves, cause them to curl over and effectually protect the enemy that is depriving them of life.

The rapidity with which plant lice multiply is marvellous, and perhaps not sufficiently recognised. According to the calculations of Reaumur, five generations proceeding from one mother produced 5,904,900,000 in a season. It is true there are natural enemies for checking the increase, as ladybirds and ichneumon flies in nature, but they are rarely present, and never in sufficient numbers early in the year, where cultivation is practised to a large extent under artificial conditions. The natural enemies of insects must never be relied on for destroying the latter, but other agencies should be resorted to for preventing the appearance of the pests, or at least be applied with promptitude when the first insect is seen.

Waiting till the young growths of trees and plants are much infested with insects before remedies are applied is placing the latter at a great disadvantage, and is often unjust to the manufacturers of insect-destroying compounds. Used in time, a moderate strength suffices for the extirpation of plant pests and leaves the plants unharmed, but when insects cluster on each other in layers, and so affix themselves as to make their prey their shelter, much stronger and repeated applications are called for; and as these cannot destroy the insects they do not reach, and the exhausted foliage cannot withstand the strong applications, what has been applied is not only pronounced useless but dangerous. Nothing can be more unfair. The fault is too near home to be admitted perhaps, but it is there nevertheless, and not with the insecticides, for if those that have been found safe and effectual by experienced cultivators, and used in strict accordance with the makers' instructions, and especially used in good time, before insects abound, they will answer the purpose for which they were intended. This latter condition is of far greater importance than the choice of any particular preparation. Some persons find one kind answer their purpose, some another, and it is a question if there is one in the market that is not safe and good when fairly applied.

Greenhouse plants innumerable, Calceolarias, Cinerarias, Pelargoniums, and others; also Roses in and outdoors; Peaches and other trees on walls and under glass; Vines, Cucumbers, and Melons are crippled in growth, seriously injured, and not infrequently completely spoiled by aphides, thrips, or scale in their several forms that

might with ease be kept clean and healthy. The path of safety lies in preventing the appearance of insects, waiting for their multiplication in myriads before attacking them amounts to giving the victory to the enemy.—
EXPERIENTIA DOCET.

SEASONABLE NOTES IN THE VINERY.

It is by close attention to various details, however trifling they may appear, that success is attained, and the mere fact of having Vines from a noted grower, or the advantage of either a first class house or border, are by no means the only conditions necessary to insure good crops. If they were there would be many more good Grapes grown in this country than are usually to be seen. After all that may be said or thought to the contrary, Grapes are more easily grown than Melons, and the novice need not despair if his crops as yet have not been quite first class.

The rods being in position and breaking strongly, the first proceeding is to disbud or rub out all shoots not wanted for furnishing the house. One lateral, as a rule, is ample for every spur, and on the young rods all the joints ought not always to be allowed to retain their lateral shoots. The spurs ought to be at least 15 inches apart on each side, and if possible should alternate. Select for retention the best placed laterals, supposing these are showing a good bunch, otherwise they may be sacrificed to those with a more promising bunch. What I consider best placed laterals are those that start out right and left from the rod, those with either a downward or upward tendency being objectionable, for they are liable to be snapped off or pulled out, and are not suitable if saved for after preservation. If the spurs are wide apart and long it may be advisable to lay in a back growth wherever these form, and at the winter pruning the old spurs can be shortened to them, thereby preventing the rapid formation of "unsightly" spurs.

The laterals being selected, the next proceeding is to pinch out the point at the first, second, or third joint beyond the selected bunch on each. On many fairly well-grown Vines each lateral produces two or more bunches. That nearest the base is usually the largest, but sometimes the second or even third bunch is preferred as being the better shaped and probably quite large enough for ordinary purposes. Some seem to think they ought to have as many bunches as possible from the Vines, but they must understand if they badly overcrop one season the chances are they will have no opportunity of doing so during that following, for the simple reason very few good bunches will form. At which joint to stop the laterals should depend upon circumstances. It is unwise to preserve more foliage than can be properly exposed to the light, and if there is room for three leaves beyond the bunch leave them; but if by retaining that number the laterals overlap each other, be content to leave two or only one leaf. No Grapes, whether white or black, ought to be exposed to direct sunshine, but a certain amount of light must reach them, or they form weakly stems, and those with yellow or white berries refuse to colour properly. The best course is to dispo-
se the rods at least 42 inches apart, plenty of light thus being admitted. I attach the greatest importance to the formation of as many primary leaves as possible, these doing better work than those formed on the sub-lateral or shoots pushed out from nearly every joint on a strong lateral. Many of these sub laterals we rub out entirely, only reserving enough to prevent the buds at each joint bursting, and those saved are kept closely stopped at the first joint. A quantity of running sappy growths which used to be thought of great service, especially in encouraging root action, is really so much wasted strength, and all we want are stout healthy leaves; timely stopping, or when it can be done with the finger and thumb, largely contributing to their formation.

Tying down the laterals is frequently tiresome work, especially when attempted before the bunches are far advanced. The more vigorous the break the greater the liability of the laterals to be snapped. Many a cultivator has flattered himself he has successfully brought down his laterals only to find next morning that several, with perhaps the best bunches attached, are flagging; and beyond recovery. This is especially the case after a sunny day, the laterals apparently stiffening during the evening and night, and the fastenings not yielding the extra strain pulls the laterals out. Where, as at Longicat and other large vineries, the rods are trained from 18 inches to 2 feet from the glass, no tying down is necessary till the bunches are well set, at which stage they are so far strengthened as to require a severe twist to break them. Unfortunately in the majority of cases the wires are disposed from 9 inches to 1 foot from the glass, and this necessitates early tying, or much of the foliage is spoilt by contact with the glass. Under these circumstances much more care must be expended over the Vines, an early start being absolutely necessary. In our earliest

vineries the rods are unavoidably trained from 12 inches to 15 inches from the glass, but in order to simplify tying down they are suspended for a time at a distance of from 6 inches to 9 inches from the wires. Even when this plan is adopted most of the laterals require to be lightly drawn away from the glass, this being done with the aid of thin strips of raffia fastened loosely beyond the bunches, and carefully strained at a good angle to the wires. In the case of Alicantes, Gros Colman, Lady Downe's, and other vigorous late sorts the process of drawing the laterals from the glass must be very gradual. I look over ours daily, the majority frequently needing to have their ties slightly shortened. By the time the bunches are set the rods may safely be fastened closely to the wires and the laterals all brought down to one level.

Young Vines require only slightly different treatment. If strong planting canes were placed out this spring, and stopped or disbudded to where they just reach the trellis, as many as possible of the shoots from the ground upwards should be encouraged to grow, and these being stopped at the fourth or fifth joint, will serve to strengthen the stem and encourage root action, the leading shoot to be carefully trained up the roof and stopped when about 6 feet long. This will be followed by laterals pushing strongly from every joint. These we stop at the first leaf in preference to allowing them to ramble. If rooting in a good border, however small, and kept supplied with moisture, each cane will become strong and well matured, requiring no shortening at the winter pruning. Older Vines that have not yet filled their allotted space may be allowed to advance another stage, but whether this be 3 feet or 6 feet must depend upon their vigour. We find that summer stopping is better than winter pruning, and never grow a great length of rod only to be cut away again. Winter-pruned rods do not break so regularly as those left to their full length.—
W. IGGULDEN.

NEW ROSES.

TEAS.

THERE is perhaps no more remarkable instance of the laws of supply and demand than that afforded by the hosts of new Roses sent out from the other side of the Channel. Formerly we used to get seven or eight Teas to about fifty or sixty Hybrid Perpetuals; but seeing that we were getting tired of having a number of Hybrid Perpetuals palmed on us which were not worth the trouble of propagating, and that the Tea Rose was coming into much favour, the whole thing is altered, and we have now a great increase in the Teas, so that in the present year there are in the lists twenty-five to forty-one Hybrid Perpetuals, and we have thus a great probability of being flooded with a lot of worthless Teas, as we have with worthless Hybrid Perpetuals. We must always, I think, look back upon the past as an indication of the future; and a grower who has in former years supplied us with fine varieties is more likely to recommend his novelties from that fact than from the most high-flown descriptions for which he can ransack the French language. When Guillot praises a new Tea or Lacharme a new Perpetual we anxiously look forward in the hopes of getting something that will be worth growing. Of the Teas, Nabonnand introduces eight, one-third of the whole number, but as he lives on the borders of the Mediterranean, and is zealous in supplying the frequenters of the Riviera with cut blooms, we might presume that he would be more anxious for quantity than for quality; and when we look at the list so carefully prepared by Mr. Girdlestone for the National Rose Society of new Roses sent out since 1884 we find this grower credited with no less than twenty-four varieties, independently of those of this year, and not one of them has made any mark, while on turning to the National Rose Society's catalogue of exhibition Roses there is only one of his retained in that select list—Francisca Kruger, and I fear therefore that Rose growers will regard with a good deal of quiet composure the amount of his novelties. Nevertheless, I must, owing to their number, give him the post of honour.

NABONNAND.

LADY STANLEY.—Lilae, the petals being edged with purple, and having a yellow base, large, very full, globular, and imbricated; very vigorous, with purple foliage and wood.

LADY ZOE BROUGHAM.—Extraordinarily brilliant, tawny yellow darker on the edge of the petals; large, full, imbricated, and of good shape, with a long bud, very vigorous. A seedling from Isabelle Nabonnand.

MADAME AGATHE NABONNAND.—Flesh colour, margined, a splendid large and full flower, with a substantial egg-shaped bud; very vigorous, a continuous bloomer, and very sweet scented.

MADAME MARGUERITE LARGE.—An indescribable unique rose colour, very large, full, expanded, very vigorous, and free flowering.

PRESIDENT CONSTANT.—Pale coppery rose, base of petals bright yellowish fawn, and shaded on the edges and striped with bright red, large, full, erect, of fine shape, with long bud; very vigorous and free flowering.

PRINCESS DE HOHENZOLLERN.—Bright dazzling red, outside of petals darker than the centre ones; very large, full, and of fine shape, very vigorous. A plant of this Rose covered with bloom in full sunshine might be mistaken for a burning bush. There, my masters! What think you of this for a description? Could George Robins have excelled it? Probably, however, he may mean that whoever goes in for it would be likely to burn their fingers.

PRINCESSE DE RADZIWILL.—Coppery red shaded, large, full, erect, long conical bud; vigorous. A seedling from Isabella Nabonnand.

VICOMTESSE DULOU DE ROSNAY.—Very bright rose, with a silvery edge to the petals; large, full, well shaped, and very vigorous.

GUILLOT.

LUCIOLE.—Very bright carmine rose tinted with saffron yellow, the base of the petals being coppery yellow, and the back of them bronzed; large, full, of good shape and habit, with a long bud, vigorous, most deliciously scented; a seedling from Safrano rouge; extra good. Guillot has given us some of our best Teas, and when he pronounces of this Rose that it is extra good we may hope that there is something in store for us, although Safrano is so thin that one might yet doubt whether a seedling from it would answer to the description fully.

SOUPERT ET NOTTING.

ARCHIDUCHESSE MARIE IMMACULATA.—Clear brick red, shaded with glossy fawn, centre golden vermilion; large, full, and of good shape, outer petals being very large; vigorous, and very sweet-scented. Extra good.

DIRECTEUR C. BERNARD.—Delicate rosy magenta on a silvery ground, the edges of the outside petals being often edged with pale violet; large, very full and imbricated; vigorous and very sweet-scented. A very beautiful variety.

GONOD.

BARONNE DE FONVIELLE.—Coppery yellow, back of petals reddish lake; large, full, and of good shape; vigorous, very free-flowering and sweet scented.

WIDOW LÉDÉCHAUX.

CHÂTEAU DES BERGERES.—Pale canary yellow, centre darker; large, globular, and very full, with a substantial well-shaped bud. Vigorous.

BONNAIRE.

DOCTEUR GRILL.—Coppery yellow, with a fawny rose reflex, back of petals shaded china rose; an entirely new colour. Large, full, and of perfect shape; vigorous.

MADAME CHAVORY.—Nankeen yellow at opening, the back of the petals turning to china rose, while their face becomes coppery yellow (a description which might do for an attack of yellow jaundice); a very large flower, measuring from 4 to 5 inches across, of beautiful imbricated shape; a very vigorous and free-flowering climbing Rose; raised from Madame Bérard and William Allen Richardson.

DUBREUIL.

DUCHESSE DE BRAGANCE.—Bright canary yellow in the centre, paler on the edges, very full, and opening well, with a firm stem; the outer row of petals curls back very gracefully. Vigorous, with long wood.

WIDOW SCHWARTZ.

MADAME DELESPAUL.—Yellowish white, centre rosy salmon; large, very full, cupped, and of good shape; of dwarf growth. Vigorous; a seedling from Gloire de Dijon.

BERNAIX.

MADAME A. ETIENNE.—Rosy claret colour on the edges of the petals, gradually diminishing to pale rose, and fading away towards the centre, which is pure white; cupped, the outer petals very large, and rather distant one from the other; the inner ones much smaller and reflexed; rose colour before the flower is fully expanded. A very coquettish (!) and charmingly fresh-looking Rose, and very fragrant; of bushy habit, each short branch having a terminal flower. One wants a little breath after reading this; but even then who can possibly imagine what the Rose is like—a coquettish Rose; well, perhaps she will make love to the burning bush already described (by the raiser).

MADAME SCIPION COCHET.—Outer petals pale rose, shaded a dull white on a pale ground; inner petals shading from canary to

apricot yellow with a purple reflex; very double, imbricated, and of vigorous growth. A sterling variety, and a desirable Rose.

VICOMTESSE DE VAUTIER.—Beautiful rose petals, tinted yellow on the inside, and sometimes shaded rose; the centre is deep rose, producing a charming effect; large, full, and fairly vigorous.

C. LEVET, JEUNE.

MADAME HONORÉ DEFRESNE.—Beautiful dark yellow, with coppery reflex; of good shape and vigorous growth.

MADemoiselle ELIZABETH DE GRAMMONT.—Bright rose, base of petals coppery yellow; large, very full, and of good shape and habit; vigorous, and very free-flowering. A fine new Rose.

LAMBERT.

MADemoiselle CLAUDINE PERREAU.—Bright rose, sometimes paler; a seedling from Souvenir d'un Ami, and in the same way, but much more vigorous in growth, although not a climbing Rose; probably a great acquisition.

MARIE LAMBERT.—Pure white; a seedling from Madame Bravy, and just as vigorous. A good Rose for pot work.

J. N. MAY.

THE BRIDE.—This is a very beautiful sport from Catherine Mermet, white, but not so white as Niphetos; it is, however, more vigorous, and will most probably be a useful Rose.

It is very difficult from the description to forecast what the Roses may be, but if at all like what they are described we are likely to have some novelties. In Guillot's Luciole and in Bernaix's two Roses, we may probably find prizes. We have so often been doomed to disappointment in our anticipations that it will be safer not to prophesy, but I think we may look for more novelty amongst the Teas than the Hybrids.—D., Deal.

CUCUMBERS IN FRAMES.

THERE is no better way of growing Cucumbers from April to October than in frames. Those with many glass houses generally devote some of them to Cucumber-growing, and it is a fine sight to observe scores or hundreds of the fruits hanging from the roof, and when seen in this way some might be inclined to think that the house system was the best. It is not, as there is no way in which Cucumbers fruit so freely as in frames. I would undertake to produce three times the quantity of fruit from plants in a two-light frame than can be gathered from those in two lights of a pit, and with proper management I will guarantee that anybody may do the same. Cucumbers in houses generally bear very heavily for a short time, then they fall off very much, and, although a second crop may come, they never bear so constantly as those in frames. I could name many instances where the first Cucumbers were cut from a frame in May, and the supply never ceased until October, and they came almost as fast as they could be cut. Why this should be is not difficult to explain, as frame plants are not half so liable to be infested with insects as those in warm houses, and the roots never appear to be checked in a dung bed, but the moisture in a mound of soil in the house is very apt to fluctuate. A little bottom heat is very necessary at first, and it is beneficial as long as it lasts, but excessive heat must be avoided at all times.

Make a good hotbed at the beginning. This may be composed of stable manure, tree leaves, and any refuse that will ferment. The bed cannot be made too firmly. The firmer it is the longer will it hold the heat. A bed properly made now will afford heat for three or four months. If it is 3 feet high at the front and 4 feet or a little more at the back it is sure to prove right. It must always be about a foot wider all round than the frame. Early in the season in placing a frame on a hotbed a lining of the manure is generally placed round it and nearly up to the top; but now this is not necessary, and the bed may be made, finished off, and then place the frame on it. If any more is added a little of the material may be placed as a layer inside, but it should not be nearer the glass than 15 inches or 18 inches.

Place a mound of soil in the centre of each light. Some place one at the top and another at the bottom, but this will crowd the plants too much, as one plant will always fill one light. The soil should consist of good loam to the extent of three parts and the other part rich manure. Do not use sand or leaf soil, there is no nourishment for the plants in these, and they only tend to produce leaves and long-jointed unfruitful wood. The mound must be from 10 inches to 1 foot in depth and about 2 feet in diameter. Do not place it in the form of a cone, but make it more level, and water may then be given freely. If a plant can be obtained place it out in the centre of the mound in a slanting direction, that the top of it may not come in contact with the glass. If a plant cannot be had, insert a seed in the same part, or in case of failure sow two seeds, and if both grow draw out one of them. As soon as the

shoots begin to run peg them down into position. Thin them out weekly, and above everything do not crowd them. This is the great mistake in frame Cucumber culture, as a crowd of shoots and leaves only cause the young fruit to become yellow and fall prematurely, and as soon as one shoot has fruited cut it out and allow a young one to take its place. This is the way to secure a succession of fruit. Do not shade from the sun at any time, as they are much more short-jointed and fertile when grown in the sun. Admit air when the temperature exceeds 70°, and never allow the plants to suffer by want of water. Give water at the same temperature as the frame or bed, but liquid manure is not needed until the plants have been bearing for two months or more.—A KITCHEN GARDENER.

THE GARDENERS' ORPHAN FUND.

AFTER our very satisfactory meeting of last week, and the progress the Orphan Fund has made, I wish to return my sincere thanks to the members of the Press, Committee, and our excellent Chairman for the very able and willing help they have given to this scheme. I hope no gardener in the kingdom will let the next fortnight pass without responding heartily to the call of charity. We unfortunately had a sad experience of the need of an Orphan Fund only a few days since, when our poor brother Mr. Carr met with such an untimely end; whether his widow and children will need help I know not, but if they do, out of our small beginnings I should suggest sending them what we can. In starting this scheme I could not possibly have thought of myself or that it would be useful to me, and I am sure no one who has given me their support will draw back on account of my shortcomings in originally placing it before the public. It certainly is not given to every man to write on or start a scheme off-hand, and I can only hope that those who have so ably assisted me may live to see it a growing and great institution.—CHAS. PENNY, *Sandringham*.

CHRYSANTHEMUMS AND THEIR CULTURE.

MR. GARNETT is evidently bent upon "treading on the tail of my coat" when he says I wished to show up his ignorance. Passing that allegation, I do think his teaching on Chrysanthemum culture is based largely upon theory. I have very good reasons to judge what was the quality of the blooms which Mr. Garnett's plants supplied him with, even during the last Chrysanthemum season, for a friend who knows good blooms when he sees them says Mr. Garnett "had a very good home show, but no flowers that would compete successfully at our leading shows—as, for instance, Kingston, and such like." Now I contend that a person who assumes the rôle of a teacher, and even an improver of other people who have in the past had reason to be satisfied with success, should be in a position to point to something more substantial than pen-and-ink theories and scientific terms. When I said, on page 266, "We are as far from the desired point as we were before," I ought to have added, "if we are far from it at all." I can only judge we are through Mr. Garnett's attempted alteration in the system of culture which has carried not only myself but others to success, and placed us "shining by the reflected light of silver challenge cups." I can well afford to pocket the mild satire, and I daresay others can who shine by such lights. Mr. Garnett advances Mr. Midgley's success at the late Huddersfield Show as substantiating his own arguments. No one was more pleased than myself to hear of the success of Mr. Midgley, whom I look upon as a personal friend, and from a conversation I had with him here last summer I understood that his plants were grown under the same system as ours, therefore I am surprised to hear from Mr. Garnett that it was not so. Even if I am mistaken in this it is a point in my favour when Mr. Garnett admits that Mr. Midgley did not win first honours with his incurred blooms in the open class competition. Perhaps Mr. Garnett will think that I look upon those growers of Chrysanthemums who do not exhibit them as not being capable of growing them as well as those who do compete. Such is not the case by any means; because I know there are gardeners who are not allowed to show their produce; therefore, the public have not an opportunity of judging what they can do in cultivating this grand flower. I ought to have written this paragraph directly after the one relating to Mr. Garnett's own plants. Mr. Garnett should not blame me for not acting up to my professions of being anxious to give the full benefit of my experience to the large number of Chrysanthemum growers. He should blame himself for not bringing better evidence to prove my practice wrong; but I presume, because I do not contradict (for Mr. Garnett's advantage) what I have written in my book I am to be accused of not being willing to assist the great body of growers. I take my stand by the book, as it certainly contains my whole experience. I know nothing more that I can add for the benefit of others, and the practice which I defined has stood many others besides myself in good stead at critical times. I am quite willing to listen to sound reasoning, and will do all I can to help beginners, but I cannot admit that Mr. Garnett has proved my teachings wrong.

I consider my reason given on page 266 for placing Mr. Bunn in the list where it is in my book a very good one, and I thought it of sufficient importance to explain why it was placed there. Does Mr. Garnett deny that many growers besides myself grow a large number of plants on the lottery system? If he could teach everyone to turn them all up as

prizes he would confer a boon on many a struggling individual. I do not evade the question of the complications of bud formation at all. I have no reason for so doing, simply because I do not know what they are. I am happy to say that the buds "do" come, or I should not have been "shining by that reflected light" as I fortunately have been in the past. I did say that Mr. Garnett was "very full" in his description of the bud formation (but I meant in the "scientific terms" he used, not that I thought he was as "clear" as he was full); but why does he not quote me a little farther, where I said, "He is not sufficiently clear and plain to beginners?" Allow me to answer Mr. Garnett's inquiry *re* July buds forming on Meg Merrilies, Princess Teck, or Boule d'Or. Under ordinary circumstances of growth I never saw these varieties form buds at that time; therefore it is not necessary to say when the next buds will form, but I will say what these varieties generally do. They make their first natural break early in June, the next break is then generally early in August. It is such varieties as Elaine, Madame Bertier Rendatler, Mr. Bunn, and Lord Wolseley that sometimes show this July bud. This answer will, I trust, be sufficient for Mr. Garnett on this point.

In referring to Mr. Garnett's assertion anent the variety Belle Paule not producing blooms last year of the same quality as in the previous season, though receiving exactly the same culture, but not the same conditions as regards the weather, it may be stated that many growers had no flowers of it. Neither do I think it was scarce in stock; certainly not with those growers who had seen it the year before. Therefore the formation of the buds was not a matter of chance as far as the time wished for was concerned, but it was climatical influence that wrought such havoc amongst plants of this variety. If the plants were grown by the same method as Mr. Garnett would teach us, how does he know that unsuitable weather would not take place at the time least required by his method? Therefore to an extent it is somewhat of a lottery.—E. MOLYNEUX.

LATE-BEARING MUSHROOM BEDS.

IN support of Mr. Muir's article on late-bearing Mushroom beds, I send you a clump of Mushrooms gathered from a bed here, which was spawned on January 6th. The size of the bed is 8 feet long 3 feet wide, and I foot 3 inches deep, made in a cool inner shed about 4 feet from the floor. The manure heated rather violently at first, and soon became quite cold. Instead of pulling it down again I fastened a couple of mats under the bed in the form of a hammock, and then filled the space between the bed and mats with six or seven barrowfuls of manure; this soon caused a nice heat about 70° in the Mushroom bed. At this stage I inserted the spawn and covered the surface of the bed with fine soil to the depth of 2 inches, then covering the whole with hay.

The heat in the bed was retained for three weeks, and then all went cold again. The additional manure was soon afterwards taken away and the mats dried. There was no sign of Mushrooms until about a fortnight ago, when I examined the bed and found a quantity of "buttons" appearing; the hay was then removed and the bed watered with tepid water. I have now gathered quite 100 fine Mushrooms, and the surface of the bed is at the present time white with them, having every appearance of bearing full crops for some weeks longer. Mushrooms may not be produced in as short a period grown with cool treatment as they can in a specially provided structure, but for flavour and appearance I think they surpass the latter.—G. GARNER, *Amberwood Gardens, Hants*.

[The "clump" referred to comprised sixteen firm fleshy Mushrooms.]

SWANLEY FLOWERS.

IT matters little what time of year is selected for a visit to Messrs. H. Cannell & Sons, Swanley Nursery; from midwinter to midsummer, and onwards again to the cold period, there is a never-failing succession of flowers that make the out-of-doors attractions look comparatively dull at any period. To enter one of the numerous houses devoted to Zonal Pelargoniums is to find oneself amidst a dazzling variety of colours, and when these are brightened by an unclouded sun, as was the case when we recently visited the establishment, we can realise something of the brilliancy of such plants. They always seem fresh, are always flowering profusely; they are, indeed, one of the standard features at Swanley which equally impresses those who see them frequently or seldom. Their appearance is heightened by a neat graceful fringe of *Othonna crassifolia*, which drapes the margin of the walls, the succulent foliage and growth of the plant fitting it for the companionship of the Pelargoniums, and when covered with its starry golden flowers is still more pleasing. The number of varieties amongst the Pelargoniums is so great, and their merits are so nearly equal, that selection becomes a difficult task, and it is only possible to name a few of those that attract one's attention. Some of the most notable at the time of our visit were the following:—Single: Nora, pale pink, large, handsome; Cato, scarlet, very free, large truss; C. Swinstead, scarlet, rich, free, immense truss; Victor Hugo, salmon scarlet, free, and dwarf; Mrs. Robertson, bright pink, white eye; Kentish Fire, a most brilliant scarlet, an excellent variety; Plutarch, another fine scarlet form, with large flowers and trusses; Atala, scarlet, large, and handsome; Edith George, bright pink, white eye, flower large and well formed; Ferdinand Chaf-folte, rich magenta, very distinct and beautiful shade; Queen of the Belgians, an excellent winter-flowering white variety; Swanley Gem,

bright salmon, white centre, a remarkable variety; Mrs. Holford, salmon pink, free; Lady Chesterfield, large salmon, white eye; Lord Chesterfield, large flower, crimson, free; Eurydice, pink, white eye, a useful variety, free, and cheerful tint; Mrs. James Douglas, very dark scarlet; Mr. H. Cannell, one of the largest flowers, the colour a bright scarlet; Alcides, rich scarlet, white eye; and Lord Rosebery, salmon, flower large, truss compact, and free. Of the double varieties there was not so great a display, as the flowers are in much demand for cutting, but the following were good:—Spade Guinea, orange-scarlet; Lord Mayor, purplish crimson; La Cygne, white; Gertrude, salmon; Australian Gold, orange scarlet; Cicee, crimson; and Lakanaal, purplish-crimson. Ivy-leaf



Fig 6L—Mignonette Cannell's Perfection.

varieties, which are so well grown there, are quite at their best in April, but a new double form, Lang-Son, with fine scarlet flowers, of excellent shape and good size, was very notable. The decorative, regal, and French spotted varieties have considerable space devoted to them, and especially fine was Venus, an early flowering variety, white with purple spots in the two upper petals, and which was had in capital condition some time before Easter. Volonté Nationale Album, pure white, is an excellent free flowering variety; Madame Charles Coninek, pure white, and Denise, double white, are also good, the last named being a most valuable variety for cutting.

The houses appropriated to Cinerarias contain specimens of the carefully selected varieties and well proved strain grown at Swanley. The singles are most varied in colours, very rich, the flowers large but neatly formed. Of the named varieties the most notable were Miss Coope, white centre, dark blue margin; Miss Fortescue, deep crimson; Argus, rich crimson; Pure White, white with purple centre; Attractive, dark blue; Marched Past, very deep crimson, white centre; Victory, another fine crimson coloured variety. An extremely pretty effect is afforded by the double Cinerarias, useful plants for decorative purposes or cutting that ought to be more largely grown. They are readily obtained from seed, but the named varieties are kept true by propagating them from offsets.

Some of the best named varieties were A. F. Barron, crimson; Oxford Blue, dark blue; F. Cox, purple; F. Stanger, dark blue; Blondin, pink, the florets white on the under surface; Mrs. Scott, crimson and white; and Kate, pink. They are very durable, the colours are good, especially the blue and purple shades, and the plants are worth a place wherever a conservatory has to be kept bright.

Mignonette is always in demand, and it is scarcely possible to obtain too much either of flowers or seed. Like all the popular plants, it is admirably grown at Swanley every year, but this season an exceedingly fine strain is represented by half a house full of plants bearing enormous spikes of powerfully fragrant flowers. It is a very fine selection, and is named Cannell's Perfection, one of the spikes being shown in fig. 6L, its natural size. Next to obtaining a good strain of seed, much depends upon the mode of culture adopted with Mignonette. It should be grown sturdily at all stages; if allowed to become drawn or weak in a seedling state it never makes satisfactory plants, but when advancing for flowering it can be liberally encouraged with advantage. When the plants are strong they can be thinned freely, and in some 48 or 32-pots in Messrs. Cannell's house there are only two or three plants, in a few cases only one, beautiful vigorous specimens crowded with flowers.

In other houses is a large stock of showy *Calceolarias* coming forward rapidly. Several are devoted to *Primulas* for seed of all the select Swanley varieties, *Cyclamens* in various stages, Tuberous *Begonias* by thousands, and a long house is full of *Carnations*, the excellent yellow Mrs. William Bright and Pride of Penhurst being in strong force with other choice varieties. Innumerable attractions are provided in other houses, including miscellaneous, ornamental, stove and greenhouse plants, *Cactaceous* plants, of which there is a selection of the best forms; *Tropeolums*, winter-flowering *Begonias*, fine-foilage *Begonias*, *Lantanas*, &c. *Lilium candidum* has been forced early this season for its pure white fragrant flowers, which are much valued at Easter, and the principal points to insure success with it is to obtain early matured bulbs, and when potted to bring them on gradually, as any attempt at rapid forcing by placing them in strong heat is disastrous. In other respects they are easily managed if kept clear of green fly, which is partial to the young flower stems. Outside preparation is being made for the *Dahlias*, which constitute such an important feature in autumn. The scores of frames are filled with bedding plants, *Auriculas* and *Chrysanthemums*, for which the demand this season has been very great. *Daffodils*, *Pansies*, and *Violets* are flowering in the open beds, and amongst the last named is a handsome single white variety, Mrs. Rawson, that will become a great favourite for cutting purposes, as the flowers are large, pure white, fragrant, and on long stalks. It appears to be very strong in habit and free-flowering.—T.

GLOBE ARTICHOKEs.

THESE plants pay for liberal treatment, they should, therefore, be planted in deeply trenched and heavily manured ground. The best time for making new plantations is when the plants have started into growth, which in ordinary seasons they do towards the end of March or early in April; but the present being an exceptionally late season the plants of Globe Artichokes are now (April 30th) only a few inches above ground. Having made good any blanks that may have occurred in the rows of existing plantations, proceed forthwith to make fresh ones, say two or more rows, according as they are long or otherwise, doing away with a like number of rows of the oldest plants annually. The rows should be from 3½ to 4 feet asunder, and the plants should be given a like distance, planting them with a garden trowel in patches of three, and make the soil firm about the roots. In the absence of rain at the time the work is being done, give water to settle the soil, and then lay on a mulching of short dung to the thickness of 2 or 3 inches. These will yield a supply of "Chokes" just as that previously obtained from the established plants are exhausted. Hence the advisability of making a planting of this much-esteemed vegetable annually. The green variety finds more favour than the purple one, but it is advisable to grow a few rows of the latter also, as tastes differ.—H. W. WARD.

AURICULAS AT SOUTH KENSINGTON.

APRIL 26TH.

No *Auricula* grower who had watched the character of the weather for the last two months could have anticipated a successful exhibition at the southern show of the National *Auricula* Society, and it will not be, therefore, a matter on which much difference of opinion is likely to be expressed when one designates it as much below the mark. Neither in quantity or quality was it equal to many preceding shows of the Society; while one cannot but contrast the number of plants exhibited with what one used to see before the establishment of the Society, when perhaps a dozen or two of plants formed the sum total of the exhibit at the spring shows of the Royal Horticultural and Royal Botanic Societies.

The addition of *Primulas* to the show has been doubtless a very great gain, and a great deal of interest was shown in the beautiful collections of the various species and garden varieties shown by Messrs. Paul and Son, Mr. Ware, the Royal Horticultural Society, and others, although Mr. Llewelyn's collections were sadly missed. But although very interesting to myself I must not dwell upon them, but confine my observations to the show *Auriculas*. I am such an "old fogey" that I cannot get up an enthusiasm for the Alpines, beautiful as they are, and still hold to those rigid rules, the violation of which is considered nowadays to be

consistent with "law and order." Thus, with regard to the size of the truss, I am no advocate for one consisting of fifteen or sixteen pips, however effective they may appear to the ordinary observer. I do not think there was one of these large trusses in the Exhibition that had not one or more pips that were *passée*, and so gave an appearance of deadness to the blooms. On the other hand, I cannot call that a truss of Auricula in which there are less than five pips of an edged variety, or seven of a self, and yet in many of the winning stands there were flowers with only three pips, and these just the remnant of the truss, the footstalks of the others being plainly visible when they had been cut away. I think that it would be well in future that the old-established rule should be adhered to, and no edged flowers shown with less than five pips or selfs with less than seven.

With regard to the exhibitors, it will be seen that although this is the southern section of the National Auricula Society, yet the northerners take the lion's share, and the absence of the collections of the Rev. F. D. Horner, Mr. Barlow, Mr. W. Bolton, Mr. White, and Mr. Potts would have made a very serious gap in the Show. These collections must have been more or less aided by fire heat, and as an old Auricula grower who might this year celebrate his jubilee of Auricula growing, I can never believe that it is good for the show varieties, and fancy that a good deal of the roughness which one could not fail to notice was attributable to this cause. Mr. Douglas maintained his position as a southern grower, but he was certainly not up to his usual form, while the absence of such growers as Mr. Simonite and Mr. Llewelyn made a most appreciable gap in both the amateurs' and growers' exhibits. Mr. Turner's plants were small and below the mark, owing to the very satisfactory reason that he had sold all his large plants.

With regard to varieties, there were some very noticeable facts, thus Prince of Greens (Traill's) was shown in a form which I think few have seen it in before. The premier prize plant of Mr. White of Newcastle-on-Tyne was a beautiful one; it had eleven pips, and although one or two were a little past their best, it was very fine. Being such a large flower, it can bear a large truss better than some others; but even here I cannot but think that if it had been a little more thinned out it would have made a handsomer truss. George Lightbody was nowhere up to the mark; the best was one in Mr. Douglas's stand of twelve, but generally it was rough and out of character, a clear proof of the unfavourable character of the season. The Rev. F. D. Horner (Simonite) is evidently establishing its character as a fine addition to that scarce section the green edges; so scarce, at any rate at this Exhibition that in the class for single plants Headly's Greu obtained a prize, although wanting in some of the most necessary qualities of a good Auricula. Acme (Read's) is another flower which has fully justified all that was expected of it, and bears out what I remember to have said of it some years ago when I saw it with Mr. Jonathan Booth at Manchester, that it was the best white edge in growth; nor have I seen anything since raised that can be compared to it. There are some which are classed among white edges, but in which the white is a very disputable matter, as it merges so often into grey. Another flower that came out remarkably well this year was Traill's Beauty. It is a very uncertain flower, being sometimes the beauty and sometimes the reverse; but it was shown on Tuesday very frequently and in very good condition. Like all Auriculas it is deficient in some one point, and the eye lacks brightness. It is, however, a large and bold flower, good on the stage, and a very vigorous grower, and produces offsets very freely, so that it is everybody's flower; others are the flowers only of a select few, who do not mind giving their guineas and half-guineas for a new variety, which, after all, may prove no better than some they have already in their collections. Heroine (Horner's) is, I think, the finest self we have—at any rate, of its colour. The smoothness of its petal and the richness of the colour combine to make a very lovely flower. It gained the second prize in the single specimen class, and deservedly so, the first being taken by Mr. Douglas with a seedling Sir W. Hewitt, a flower of great promise. Topsy, which was so well shown last year, was out of the running this season. Colonel Taylor, too green edge, which has been so often well shown, although we can all see its defects, was only represented by one specimen if I recollect rightly; and thus, I suppose, the Auricula, like other florists' flowers, has seasons which are favourable to one variety and unfavourable to others.

I say little on the subject of seedlings, although it is very interesting to see how many persons are engaged in the delightful occupation of Auricula growing, and I do so for these reasons. In the first place, however interesting they are to the raiser—and nothing can be more so, although it requires a very impartial judgment to pronounce on one's own productions—yet, as they are very slow to increase, it must be some years before the general public of Auricula growers have an opportunity of adding them to their collection. One might give a very interesting description of Douglas's Abbé Lizst, or Horner's Magpie, but it is the raisers themselves who alone for some years to come will have their enjoyment. Thus, although an enthusiast about Auriculas, I have not added as yet to my collection such flowers as Rev. F. D. Horner, Conservative, or Sylvia. Another reason is that the character of seedling flowers is very uncertain, perhaps less in the Auricula than in many other florist's flowers; but still there is uncertainty, and the delay that must take place before these flowers can be generally distributed may perhaps shatter some reputations, although it may confirm the good opinions of others. In this branch the northerners are, as in others, far ahead of us in the south. Messrs. Horner, Pohlman, Walker, Simonite, Barlow, and Bolton form a goodly phalanx of raisers, represented mainly in the south by Mr. Douglas; and the careful and more scientific manner

in which hybridising is carried out nowadays would, one would think, result in something good, but all raisers have to recollect that it is very difficult to beat such flowers as George Lightbody, Acme, Prince of Greens, and Lancashire Hero.

It will thus be seen that my estimate of the Exhibition, on the whole, is not a very favourable one, but I do not think any Auricula grower could have expected otherwise, and I am sure all lovers of the flower feel much indebted to those northern growers who managed to get their flowers up to London, and set so good an example of what skill and determination can do in the cultivation of this beautiful spring flower.—D., Deal.

RENOVATING FRUIT TREES.

SOME time since I read with interest your leading article headed "The Beginning of Wisdom," which referred to the subject of hardy fruit culture in Kent. We have also many old unprofitable trees in the orchards of Scotland—viz., Carse o' Gowrie and on the Clyde. There are three ways of improving these that I have practised with success, and which I would recommend—viz., root-pruning, top-dressing, and uprooting of practically worthless trees and planting young trees of better varieties. I will make a few detailed remarks on each if you may consider them worth a corner in the Journal. After I went to Lauriston Castle near Montrose, as gardener and forester, I found a deficiency of good presentable fruit. The garden walls about 400 yards long and 10 feet high were well covered on both sides with beautifully trained trees, from twenty to forty years old. The subsoil was a stiff red clay much in want of draining. In July after stopping the young wood we lifted as many of the roots that were near the surface as we could of a few Pear trees that were to the top of the wall, but had never fruited. We cut the roots back to within 20 inches of the bole and gave them fresh soil. I considered it a good time to do so, as the roots may become healed up and fibres formed before winter. I had no fear of cutting them back, as there were plenty of downward Carrot-like roots left to support the trees until what were cut received a start. But we had other improvements in hand, so we had to leave the matter until October, when we went all round outside the walls and removed the soil above the roots and opened a trench all round, lifting as many of the roots as we could and cut them back to within 20 or 30 inches of the bole, leaving such as went right down to support the tree until fresh roots were thrown out in the turfy soil, which was freely used and packed firmly among the roots. Tongues were cut in the largest roots, and a piece of turf placed under them, which added to the supply of new roots. After being covered and well mulched they were left for the season.

In the following October we examined two of them and found the young roots so abundant that we considered we were safe to cut away the bottom roots. For that purpose we used a pruning iron with a long handle and a mallet, but we found the new roots were so soft that some of them by this operation were getting shaken away with pieces of the turf. So they were left for another year, and we treated the trees inside in the same manner, finishing by draining the whole garden 3 feet deep and 18 feet apart. When we cut the bottom roots two years after the first operation, a drain tile was laid below every tree from the wall to another drain in the border. A few flat stones were placed over the tile below each tree and fresh soil was added, with a mulching over all. Liquid manure from the farmyard was applied occasionally while they were making their wood, which was short jointed, with fleshy glossy foliage.

Some years afterwards a few ladies and gentlemen who had just been round the garden came into one of the hothouses and said they had been admiring our crops of fruit. After remarking that our root-pruning had been a great success, they asked how much it had cost. My employer, Mr. Porteous, said "It cost nothing, only two or three of the gardener's outside men and some of the young garden lads being employed for a week or ten days." I said we did not pay for the fresh soil or manure, but I believed it had paid 50 per cent. We had larger crops and better quality, and it kept so much better in the fruit room. We had it quite fresh during May and into June, previously it was gone in March. The trees were also covered equally with fruit, instead of having a few only at the top of the trees.

If the trees are old and unhealthy, the soil wet and not drained, "Invicta" may be right. "Professional" may as well let such alone if he has more to do than he can overtake—viz., attending his carpet bedding, ribbon borders, and Chrysanthemums. "Invicta" may find the gardener who is also land steward, with men and horse under his care, best able to help unfruitful trees if they are healthy and not too old. If young trees were more cared for the first few years there would be less need of root-pruning, which leads to remarks on the orchard, which I should have taken first, being of more public interest than wall trees, but having said more than I intended I will leave these remarks for another time if you consider they would be of interest.—JOHN MCINTOSH, *The Gardens, Geilston, Dumbartonshire.*

[Records of success and methods of achieving it are always

acceptable, because useful, to many who are striving for improvement in culture.]



TRICHOPILIAS.

THE beauty of these Orchids was well exemplified at South Kensington recently in the flowers from R. J. Measures, Esq., Cambridge Lodge, Camberwell, who now has a choice collection of these and other plants. Three forms of *Trichopilia* were exhibited—namely, *T. suavis*, *T. suavis alba*, and *T. lepida rosea*; the last named a darker coloured variety of this species than the usual one, while the pure white form of *T. suavis* is a charming companion for it. *T. crispa* and *T. tortilis* are beautiful species, and they are all of easy growth if a few points are attended to. The Mexican or intermediate house suits them best, giving them a light position, and regulate the supply of water carefully.

CYPRIPEDIUM WALLISI.

As one of the curiosities amongst the Ladies' Slipper Orchids *C. caudatum* is well known, its long narrow petals and their gradual extension rendering it very interesting. It is, however, more remarkable than beautiful, and this renders *C. Wallisi* of the same type and character more valuable, as it is certainly more attractive. The flowers are striped with green, but there is also a good proportion of yellow, the throat of the lip being of a clear yellow tint. The petals on the flowers I have seen are 18 inches long, but whether they extend in the same manner as *C. caudatum* I have not an opportunity of observing. Perhaps some of your readers could give us a note on this subject.—G.

ORCHIDS FOR BOUQUETS AND FLORAL DECORATIONS.

ORCHID flowers are much more employed now for bouquets, button-holes, wreaths, and the adornment of stands for the table than they were a few years ago; their curious and varied forms, their rich or delicate colours, and, in some cases, their agreeable fragrance, have greatly increased their popularity for such purposes. Another advantage is that many of their flowers last a considerable time when cut, and all who have much floral decoration to do can readily appreciate this. One of the most noted plant exhibitors, Mr. J. Cypher of Cheltenham, is also widely celebrated for floral decorations, and in these he often employs Orchids freely with excellent effect. Several large houses are devoted to the most useful Orchids, a total of about 8000 plants being grown, comprising some fine specimens that often take a high position at exhibitions. There are a few market gardeners who have houses appropriated to Orchids, chiefly for supplying flowers for cutting, owing to the greater demand for them in the flower market. At Covent Garden the florists' shops often contain some very choice and handsome bouquets of Orchids most tastefully arranged, the two greatest favourites being *Dendrobium nobile* and *Odontoglossum crispum*. The white-flowered Orchids are especially useful for bridal bouquets, and are then used with Camellias, Tuberoses, Tea Roses, Stephanotis, Gardenias, and whatever may be in season.

The following list comprises some of the best Orchids for cutting, a dozen of the most useful being those first named:—*Aerides odoratum*; *Cœlogyne cristata*; *Cypripedium insigne*; *Dendrobium Deari*, *nobile*; *Epidendrum vitellinum*; *Lælia anceps*; *Masdevallia Lindenii*, *tovarensis*; *Odontoglossum crispum*, *Pescatorei*; *Oncidium concolor*; *Ada aurantiaca*; *Aerides Fieldingi*, *Lindleyanum*; *Barkeria spectabilis*, *Skinneri*; *Cattleya crispa*, *gigas*, *Mendeli*, *Mossiae*, *Trianae*; *Cypripedium insigne* variety *Maulei*, *Sedeni*; *Cymbidium eburneum*; *Dendrobium formosum* *giganteum*, *densiflorum*, *Cambridgeanum*, *Dalhousieanum*, *Farmeri*, *Falconeri*, *lituidorum*, *Wardianum*; *Dendrobium glumaceum*; *Epidendrum bicoloratum*, *vitellinum*; *Lælia albidula*, *anceps*, *antimnalis*, *elegans*, *cinnabarina*, *harpophylla*, *Perrini*; *Lycaste Skinneri*; *Maxillaria grandiflora*; *Odontoglossum Cervantesi*, *cirrhosum*, *Halli*, *luteo-purpureum*, *pulchellum*; *Oncidium Cavendishianum*, *eucallatum*, *varicosum* *Rogersi*, *ampliatum* *majus*, *macranthum*, *ornithorhynchum*, *tigrinum*; *Phalenopsis amabilis*, *grandiflora*, *Schilleriana*; *Pilumna fragrans*; *Tricopilia suavis*; *Trichosma suavis*; *Vanda cœrulea*, *suavis*; *Zygopetalum Mackayi*.

Most of the flowers keep better when placed singly in water, and, as they are generally wired, this is not a disadvantage. In sending the flowers a distance, it is a good plan to bind a piece of damp wool or moss round the end of each flower stalk, place a layer of slightly damp moss at the bottom of the box, over this a piece of tissue paper, and then rest the flowers carefully upon this, packing them closely so that they will not be shaken about in the journey.—C.

CYMBIDIUM TIGRINUM.

THIS has recently flowered with Messrs. Shuttleworth & Carder in their nursery at Clapham, and has attracted some attention, as it is very distinct and somewhat rare. It is one of the discoveries of the Rev. C. S. P. Parish, who found it in the Malay Peninsula "upon rocks in the Tenasserim Mountains at an elevation of 6000 feet above the level of the

sea." Plants were sent with many others from the same district to Messrs. Lowe & Co. of Clapton, by whom it was introduced to the Orchid growers in this country twenty-five years ago. Though not one of the most beautiful, its unique appearance renders it worthy of cultivation. The sepals and petals are narrow, equal in size, and light green with a brownish shade, and a few dots at the base; the dorsal sepal and the two petals are erect and close together; the two lower sepals are spreading and curved downwards towards the tips. The lip is white with a few scattered reddish brown spots, the side lobes of the lip being long and erect, with a reddish tinge at the margin. The pseudo-bulbs are small, roundish, or ovate, with leaves 4 to 6 inches long, and the scape bears two or three flowers. The chief beauty of the species is in the spotted lip, from which it takes its name.

LEEK AURICULA SHOW.

THE second Exhibition of Auriculas and other spring flowers, held at the Town Hall on Saturday last, showed a vast improvement upon its predecessor. Not only were the exhibits more numerous and better grown, but the interest was distinctly greater, and promises well for the future of the Society. Amongst the grey-edged, Colonel Champneys was the winning variety, and those staged by Mr. H. W. Nixon were far away superior to any other in the class, although Apollo was greatly admired. In green edges, Prince of Greens, Duke of Cambridge, and Duke of Wellington were to the fore in the order named, the winning plants being really well-grown specimens. The white-edged varieties, though not so numerous, were also meritorious, the Aeme shown by Mr. B. Flanagan being a real beauty, and deserved the premier position accorded to it. Self formed a strong class and keen competition, the first prize going to Negro and the second to C. J. Perry, shown by Messrs. H. W. Nixon and M. Carding respectively, undoubtedly the best of the eighty shown. The prize for the best seedling was awarded to Mr. W. Barnfather for a very fine dark purple self. Mr. Nixon was again in front in Alpines with Merenry, the same grower also taking second and third with Mrs. Llewelyn and Mrs. Meiklejohn. Mr. M. Carding staged about a score varieties of garden Alpines, which were greatly admired. Cheshire favourite bore down all opposition in Polyanthus, Messrs. J. Brunt, J. Garner, and T. Lea being the successful exhibitors. Primroses in pots were also well shown.

The feature, however, of the Show was a magnificent collection of fifty-five varieties of Daffodils staged by Messrs. Barr & Son, of King Street, Covent Garden, and throughout the day a crowd surrounded their stand, amazed by the dissimilarity and splendid growth. "A host of golden Daffodils," truly, and one worthy even of Wordsworth's muse. Messrs. Dickson, Brown & Tait (Manchester), Mr. T. S. Ware (Tottenham), Messrs. James Dickson & Sons (Chester), also exhibited excellent collections, as did Mr. M. Mellor, of Leek. The arrangements were admirably conceived and well carried out by Mr. H. W. Nixon, the Hon. Sec. The profits of the Show, which amount to about £10, will be given to the Leek Cottage Hospital Jubilee Fund.

TEA ROSES AT MESSRS. STANDISH'S NURSERY, ASCOT.

WHEN looking through this extensive nursery a few days since I was much struck with the grand blooms, which are produced in quantity there for Messrs. Standish's London house. Some three or four span-roofed and lean-to houses are devoted to their culture; in the span-roofed houses the Roses are in a centre bed planted out, the side stages being used for forcing *Spireas*, &c. Stout stakes are inserted in the beds, and form an arch to which the plants are trained. Only well-trying varieties are grown, such as *Niphetos*, *Madame Falcot*, *Safrano*, and that queen of Tea Roses, *Catherine Mermet*; and the plants are in splendid health, not a trace of mildew to be seen. No air is given at this time of year save what comes in through the laps. Later on they are fully exposed to ripen their wood. I also noticed grand plants of *Erica Wilmoreana*, splendidly flowered. Gardenias, for which this nursery is famous, were loaded with their beautiful flowers from small plants in 48's to huge specimens planted out. Many houses are devoted to Palms, Kentias and *Arceas* finding most favour, as they stand more rough usage for furnishing than the more tender varieties. Many more plants are well grown here, reflecting great credit on the proprietors and their energetic foreman, Mr. Bush.—C. PAGE.

HINTS ON POTTING PLANTS.

AS we are now close on the time for potting stove, greenhouse, and other plants, I propose to give a few hints to your less experienced readers, to whom they may prove of service. In the first place all pots intended for use should be well washed both inside and out. This is often neglected, thinking it of no importance; but it is a great mistake.

Secondly, it is of the utmost importance that the draining should be thoroughly done. The crocks should be perfectly clean (we clean ours here by placing them in a sieve and well washing them), and in placing them in the pots great care should be taken to arrange and regulate them by placing the largest at the bottom and finishing with smaller ones. I have proved by this means a much better drainage is secured than is the case when they are carelessly thrown in, as I have frequently seen done. I also like a little rough material over the crocks before putting in the soil.

Thirdly, with regard to the potting. All soil should be used in a rough state and not sifted, as is sometimes done, for in this state it so soon becomes sour. Another important point is that great advantage is experienced by giving small shifts in preference to overpotting, and also in cases of all hardwooded plants the necessity for firm potting; I do not mean simply potting them with the hand, but I strongly recommend the use of the rammer. I remember once one of the greatest gardeners of the day coming on a visit to the gardens when I was then foreman, and at that time I was potting some Azaleas, and on his passing through the potting shed he remarked, "That's right; ram them firm if you wish to make good plants of them," a lesson which I have always borne in mind.—ALFRED BISHOP, *The Gardens, West'ey Hall, Bury St. Edmunds.*



WE understand that MR. B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, London, N., was awarded a large gold medal for a collection of Orchids, Imantophyllum, Amaryllis, and Cyclamen exhibited by him at the Horticultural Show held at Amsterdam from 2nd to 7th April this year.

— MR. F. HARMS, Rose grower, Eimsbüttel, Hamburg, states in a communication to us that the ROSE AMERICAN BEAUTY is, in his opinion, synonymous with Madame Ferdinand Jamin (Lédéchaux) that was sent out in 1875. He imported 200 plants from America, only a few of which survived. From these he propagated, and in the flowers that followed recognised the French Rose named. This he describes as an excellent Rose for forcing, but the colour (cherry red) was not sufficiently appreciated to create a large demand for blooms.

— MESSRS. JAMES DICKSON & SON, Newton Nurseries, Chester, send us a box of flowers of the handsome NARCISSUS INCOMPARABILIS SIR WATKIN, which is the finest and most effective variety of that group. The flowers are of great size, over 4 inches in diameter, the perianth divisions fresh pale yellow, the broad beautiful crown bright orange. The flowers stand at right angles to the scape, and have a most agreeable fragrance.

— "DAVENTRY" asks if any of our readers will give their experience of anthracite coal for heating hothouses. "Is the fire easily kept in? Does it burn rapidly? Does it require more attention than ordinary coke?"

— "A YOUNG FOREMAN" writes:—"Should any of the readers of this note be receiving dormant bulbs of the valuable and handsome Amaryllises I should advise them to thoroughly examine the upper portion of the bulb where the dried portions of the leaves remain. Having received half a dozen bulbs from a nursery they were potted at once. After six weeks had elapsed, seeing that there was no signs of starting into growth, I removed the dead leafy portion, and to my surprise I found a quantity of mealy bug, showing how soon a stock may be obtained when least expected."

— MR. D. C. SIMPSON has sent us samples of his WATERPROOF AND INDELIBLE INK LABELS FOR PLANTS. They appear to be made of stout paper, pale green in colour, and have a smooth glazed surface. They are an inch wide and 8 inches long, with a brass eyelet for attaching to plants. When the names are written in ordinary ink they are said to be firmly and permanently fixed, and cannot be obliterated. We will try them, and as the nature of the material suggests their being inexpensive we suspect many other persons will try them too. They are neat in appearance, very tough, and no doubt durable.

— A PAMPHLET of eight pages, treating on TOBACCO CULTURE, has been issued by Messrs. Howcroft & Watkins, Hart Street, Covent Garden, and giving details respecting selection and preparation, harvesting and marketing the crop. Some interesting particulars are included, contributed by a Tobacco grower in the United States.

— CARTER'S MAMMOTH SPRING WHITE BROCCOLI.—"For some years," writes Mr. W. J. Murphy, Clonmel, "I have been in the habit of growing various Broccoli side by side for trial, and as inquiries have recently been made as to the variety that stood best in the late trying

winter, I must give first place to the above. I divided the seed with two cottagers, and they have the same tale to tell. I do not think it is hardier than others—for the head is singularly tender at any time, as it turns in during March and April—but the leaves protect the centre, and the stem being so short frost cannot affect it so severely as in tall varieties. Though I do not find planting in holes made by iron bars a *sine quâ non*, I plant after early Potatoes without manure and without stirring the soil. Forking or digging the soil for late Broccoli is a sad blunder, and in many cases accounts for soft growth and winter destruction."

— THE same correspondent writes on "POTATO DEGENERATION AND CHANGE OF SEED. While thanking Mr. Iggulden for the courtesy of his references, and you for the space extended to the discussion of this important matter, I cannot think many of your readers or growers in general will agree with his conclusions, which I may fairly summarise.—a. Old varieties have not degenerated, they have been supplanted by newer and of better quality, not so liable as the old to disease. b. 'Greening,' or ripening Potato tubers in the sun is useless, and in some seasons injurious. c. Allowing precocious (early sprouting) varieties of Potatoes—e.g., the Champion, to remain in the ground over winter as a remedy for degeneration. d. Change of seed. 'After close observation,' says Mr. Iggulden, 'I have been obliged to confess it is a mere fanciful theory,' vide page 331, and previous Nos. If this is right the present theory and practice must be wrong."

— THE firm of MESSRS. BLAKE & MACKENZIE of Liverpool is well known in the trade, and their staff will be considerably augmented by the addition of Mr. A. Grice, who for many years has been the active manager of Mr. T. B. Thomson's seed business, High Street, Birmingham. He leaves this establishment in June to fill a leading position at Messrs. Blake & Mackenzie's, taking the journeys formerly taken by Mr. W. Blake, the senior partner, also the charge of their catalogue department, and supervises the preparation of novelties in the way of seed packets, labels, &c. Mr. Grice's long practical experience will be of great use to the firm, and he will have in Birmingham a large number of friends.

— MR. E. BURTON, *Kirkby Lonsdale*, sends us trusses of RHODODENDRON CAUCASICUM ALBUM, which demonstrate the usefulness of this variety for early flowering, and with them he sends the following note:—"On page 308, April 21st, I observe a few lines by Mr. Carter respecting this useful variety, and I have forwarded a couple of trusses, the last, on April 29th, from a bush employed for Easter. When visiting various establishments I have rarely seen this variety, which is easily distinguished from others by its foliage and habit of growth. Having grown it largely in a previous situation, I made a special effort to procure a good stock here, and for several seasons have been reaping great advantage. No variety I have met with is so free and certain to bloom each season. Nor is it apt to become unhealthy with anything like reasonable treatment and freedom from lime rubbish. For forming distinct masses furnished completely to the ground, or for furnishing the fronts of older and somewhat naked clumps, it could hardly be surpassed, and I would strongly recommend anyone who appreciates Rhododendrons to give this a place, especially where numbers of white and other cut blooms are required."

— DEATH OF MRS. CHARLES W. NEUMANN.—Only four months ago we announced the death of Charles W. Neumann, Esq., of Wyncote, Allerton, Liverpool, and now we have to record that of his wife, who expired at her residence on Monday, the 25th inst., in her seventy-fifth year. We regret that Liverpool horticulturists should have lost two of the best patrons of gardening that the neighbourhood possessed. Both Mr. and Mrs. Neumann were ever ready to help any horticultural object, and have been liberal supporters of the Liverpool Horticultural Association from its commencement. We have on many occasions alluded to the gardens at Wyncote and the wonderful productions that have been staged at public exhibitions by Mr. W. Mease, who has lost one of the worthiest employers that ever owned a garden.

— GARDENING APPOINTMENT.—Mr. James Williams, who has for several years been second gardener at Welfield, Builth, has been appointed head gardener to Sir Joseph R. Bailey, Bart., M.P., Glanwyne Park, Builth, Breconshire; and Mr. E. Trollope, foreman, Norris Green, West Derby, Liverpool, succeeds Mr. T. W. Sanders as gardener to J. W. Larking, Esq., The Firs, Lee, Kent.

— MR. W. A. COOK recommends DELPHINIUM NUDICAULE for culture in pots, and observes:—"I have some little plants that have been in flower in a north house since Christmas, and still it flowers. The seeds were sown last August in the same house where it is now in flower. It is a pity that this plant should be so neglected. It is one of the prettiest of all the class, and can easily be managed with a little extra care."

— REPLYING to "T. S." (page 289), who asks for an opinion on STRAWBERRY KING OF THE EARLIES for forcing, Mr. W. A. Cook writes:—"I do not grow it, but I saw a large number of plants last week that were being grown for market, and must say it cannot hold its own with Vicomtesse Hericart de Thury or Keens' Seedling. The owner was not at all satisfied with it, and thought it not so good as it has been represented. I had the Vicomtesse seven weeks since, they were in flower the end of January, and set wonderfully well; in fact, I gathered over twenty good fruits from some of the plants which had not been set by any artificial means."

— STRAWBERRIES IN FLORIDA.—"Strawberries are ripening rapidly," says the *Florida Despatch*. "Prices hold about the same as last week—namely, forty cents to sixty cents per quart. One carrying company has forwarded five carloads this week (April 18th), and expects to forward nine next week. This company has already marketed between 100,000 and 200,000 quarts, and will handle over 300,000 quarts before prices run down too low for shipment. The entire crop will probably reach a half million quarts."

— MR. PETER GRIEVE, Bury St. Edmunds, has produced a little guide book or manual, entitled "SHORT WALKS FROM BURY ST. EDMUNDS," dealing chiefly with the history of a very interesting district. The principal gardens and estates are also described at some length, with many particulars of interest to horticulturists.

— AN Australian paper has the following on the TARO, CALADIUM ESCULENTUM:—"One plant frequently met with on the sugar plantations in the north is the Caladium esculentum, an aquatic plant, which furnishes the large Taro root so well known to the Sandwich Islanders and the natives of other groups of islands in the Pacific. It is common on the Johnstone River and many places further north, and appears to be as thrifty as could be desired in those localities. Like Rice, marshy ground suits it best, but, like that cereal, it can be grown on well cultivated land without much water. Caladium-like, the large arrow-shaped leaves rise on high footstalks immediately from the roots; but although the leaf and stalks are very agreeable to the taste they are seldom eaten, as they are used for the purposes of propagation; these, when severed from the root and inserted in thoroughly moist soil or mud, produce in six months a harvest of roots. It is estimated that 1500 persons can be fed on the produce of a single square mile; but unless this estimate represents the entire food of that number of persons there does not appear to be much that is extraordinary in it. In those islands where it is common the natives make thick paste out of the root, and this, under the name of *poié*, forms their staple article of diet. The South Sea Islanders are remarkably fond of making a patch of cultivation somewhere for themselves on the plantations in the north and growing a few Sweet Potatoes and their old favourite the Taro."

ROSES IN PEACH HOUSES.

THE opinion obtaining of late years that Peaches and Nectarines cannot with full success be grown outdoors has caused many walls to be covered with glass for the cultivation of those and other choice fruits. That I am sure is progress in the right direction, especially when the structure is of such kind as enable the cultivator to make the most of our climate, aid in protecting from spring frosts, prolonged wet and cold at setting, whilst husbanding the sun heat. In cold, wet, and elevated localities the crops of the choicer fruits against walls are, even under the most skilled and practical treatment, precarious; for although elevation has its advantages in comparative immunity from spring frosts, there is the disadvantage of a shortened growing season, with a moist and cold ripening period. In some localities, however, Peaches and Nectarines are grown satisfactorily outdoors. Now and then we see examples of successful outdoor cultivation of the choicer fruits. Is it in favoured localities only? Anyway, the cultivation of the choicer fruits outdoors is suggestive of degenerate practice. The trees afford unmistakeable evidence of a less painstaking and judicious treatment than prevailed under practitioners of the old school. Our climate is getting colder, some say, but I do not believe it is in any sensible particular different from what it was when our garden walls were covered with healthy and well-trained fruitful trees.

There has been a great change of late years in the means employed; there is reason to anticipate an even greater revolution in the cultivation of fruit. To regain and maintain our supremacy in the world's market the cost of production must be such that goods of greater utility and merit are forthcoming at prices that defy competition. What applies to fruit is equally applicable to flowers. Whether for home or market the supplies must be good and cheap. A strict utilisation of means is the precursor of success. I make no question of simple means being best. A plain structure—it may only be a case 6 feet wide or less—is all that is required, because efficient and economical. What fruit trees like and demand are light and air, therefore a cheap substantial structure is as good, nay, better, than a showy and costly one. It matters not what width or height the structure be, the fruit trees must have unobstructed light.

In Peach houses trees are often planted at the front, trained to a trellis, and against the back wall. This is a common case of a lean-to—viz., fruit trees in front and against the back wall. In case the front trellis is low, so that the light reaches the back wall trees unsubdued, objection vanishes; but if the front trees are given the best position—viz., a trellis 12 to 15 or 16 inches from the glass, and taken up two-thirds or more of the roof, the light reaching the trees against the back wall is ample for the formation of fruit buds, the perfection of blossom. It is one thing to grow flowers, it is another to have fruit. How often do fruit trees on the back walls of fruit houses fail to set? If setting, to stone and finish satisfactory crops? It may be said it is easy to have the front trees on low trellises 3 or more feet from the glass, and so utilise both—all available space. But what kind of fruit is had on the lower half of both sets of trees? Is it or any fruit grown on such trees equal in size, appearance, and quality to that borne by trees on trellises not more than 12 inches from the glass?

Back walls in Peach houses are put to a variety of uses. There is light enough for the formation of fruit buds, the perfection of blossom, but practically of no utility for fruit. Tomatoes are sometimes planted, but they flower at a time when the Peach trees require syringing. The fact is fruit cannot well be grown in the shade of fruit trees. I do not regard Peaches grown beneath Vines so distant in the rods and spur growths as to admit light to a considerable extent, evidence to the contrary, nor shall I advance anything so foreign to fact as Roses succeeding on the back wall of Peach and other fruit houses when there is a close canopy of foliage intervening between them and the source of light. Modern practice in the cultivation of fruit accords about twice as much space to the growths as formerly obtained, and the consequence is that the fruit trees have more light and the fruit crops are finer from being borne on stouter, thoroughly solidified and ripened wood. Where Roses are grown with Peach trees the heat and moisture suit the swelling buds and opening flowers of both to a nicety, accompanied as it is with a free circulation of air. In short, Peaches and Roses succeed well together, the only reservation is that the syringe be kept from the Roses after the buds show colour. In other respects their treatment is identical—viz., a good strong holding soil, plenty of nutriment, and thorough cleanliness. So close is the identity, that the stronger the growth, provided it is stout, short-jointed, and thoroughly ripened, the finer are the Peaches in size and quality, and the fuller, better coloured, and more perfect the Rose blooms, and the similarity is further increased in that both Peaches and Roses give the grandest results on extensions, or wood that has a season to grow in unfettered by a crop of fruit or blooms.

Success seems to depend on training in young growth to displace old and worn out growths. This is best attended to after the flowering is over, just as we remove the fruiting wood of Peaches and Nectarines after the fruit is gathered, and for a like cause—viz., to concentrate the strength on the development and perfecting of the wood and buds of future crops. Wood of more than three years' growth or age ought not to exist on Rose bushes, and the younger it is the finer the blooms will be if only it is well ripened. What suits the ripening of Peach wood suits Roses, and both delight in nothing so much as a thorough rest. The removal of the lights suits them. The Roses delight in the autumnal rains, and resist the frosts and snow when the wood is properly matured. There is only one matter that need be mentioned—viz., the liability of Roses grown under glass to mildew, but there is some consolation to be derived from knowing that it does not attack Roses in a Peach house any worse than those in a house entirely devoted to Roses, and that it does not spread to the Peach trees. It readily yields to sulphur, and need not cause any anxiety; only use an alkali for syringing with, such as a little softsoap, but after the buds show colour use sulphur only.

For a back wall the plants must be what are termed climbers. Maréchal Niel, of course, heads the list. Céline Forestier, Lamarque, and Rêve d'Or, all Noisettes and shades of yellow; Anna Ollivier, pale rose; Cheshunt Hybrid, cherry carmine; Madame Denis, Innocente Pirola, Etendard de Jeanne d'Arc, and Madame Hippolyte Jamain, give a quartette of whites or nearly; Perle de Lyon and Belle Lyonnaise are good yellows. Catherine Mermet is, perhaps, the most delicate coloured Rose to have any colour at all. Our old friend Gloire de Dijon blooms as no other Rose knows how, and pleases everybody.

Some Peach houses have the trees on the back wall. That is none the worse for the having of a row of Rose bushes in front. They can be in pots, and be placed out in June. Niphetos, Marie Sisley, Sunset, Madame Welch, Madame Bravy, and W. F. Bennett are good. Where there is a number of Peach houses a succession of flowers may be had over a lengthened period. A house started at the new year will afford delicious fragrant blooms in March and April, and they are none the

worse if accompanied by ripe Strawberries. In cool or late houses we see Roses in all their beauty, for they revel in the breezy yet buoyant atmosphere.—A GARDENER.

FORCING LILIUM CANDIDUM.

I HOPE Mr. Cannell will comply with your wish and send a note on forcing this bulb, as he would be able to do it much better than I can. That it can be forced I have proved several times. Those having well matured bulbs in the flower garden can lift them in September, place three bulbs in 8-inch pot, stand on bed of ashes outside till frost sets in, they should then have a place in a cold pit. The time for introducing them to a heated structure must be determined by the time they are wanted in bloom. To flower in April and May they should be placed in heat from 50° to 60° early in January and February, kept near the glass, and carefully watered. When the flower head shows stimulants may be given. A teaspoonful of Clay's fertiliser to each pot, and watered in, answers well, or sulphate of ammonia, half ounce to the gallon of water, or any approved liquid manure. When the first flower expands they should be removed to the conservatory and kept shaded. Associated with Azaleas, Roses, Spiræas, &c., they are very effective.—GEORGE PRICE, *Marston Hill Gardens*.

In reference to your remarks in the Journal, page 309, I may say I bought a quantity of *Lilium candidum* at a sale last June. They were planted out in a border, and the flower stems were quite 2 feet high. I lifted them carefully, placing five bulbs into a 10-inch pot, transferred them to the greenhouse, and shaded from the sun, where they opened their flowers as well as if they had never been disturbed. When they had finished flowering they were placed near a wall with a north aspect, kept well watered with liquid manure till the foliage turned yellow, when they were kept rather dry and taken into the greenhouse at the end of October. They were started again at the end of December in a temperature of 55°, increasing the heat in March to 80° by day and 60° night. The flower stems were about 3 feet high, with from seven to ten flowers on each. The first flowers expanded on March 23rd. I enclose specimens of flowers open now, which are not so large as the first that opened.—J. BOUNDS, *Gardener to A. L. Jones, Esq., Aigburth*.

[The flowers are excellent, pure white, and powerfully fragrant.]

NOTES FROM LARKHALL.

BEING in the neighbourhood of Bath a few days since, and having half an hour at my disposal, I ventured to call on Mr. Taylor, the noted Grape grower, feeling sure of both a courteous welcome and also of seeing something out of the ordinary, and, I might add, hearing something in the same respect. In neither was I disappointed. That Mr. Taylor is an equal adept at Rose culture the commodious Rose house under his care fully testifies—lofty, broad, and of good length, planted with large bushes, the Tea-scented varieties, and laden with hundreds of flowers of the highest quality, while innumerable shoots of young growth of that bronzy hue so beautiful to the eye of the cultivator, surmounting broad dark green foliage innocent alike of mildew and other dire pests so troublesome to ordinary growers, form a feature not easily forgotten. That they have a course of treatment usually adopted for general cultivation is evident, air-giving being an important item; and although in many hands such free circulation would prove disastrous, here under the guidance of Mr. Taylor the results show it to be decidedly beneficial. The chief varieties grown are well-trying favourites, such as Catherine Mermet, Marie Van Houtte, Souvenir d'un Ami, and Maréchal Niel. In the next compartment of this range of houses are the Vines whence came the magnificent Grapes exhibited at the Metropolitan and Bath Shows. As to the appearance of the Vines at the time of my visit, it will suffice to say that they were looking all that could be desired, and give such promise as to not leave the least doubt but that they are destined to become as noted, and I will venture to predict more so, than the Vines so long associated with Mr. Taylor's name. Tomatoes in the next division were looking remarkably well; a superior type of the old Orangefield still finds favour here, and that doubtless with good reason—short, sturdy, and wonderfully prolific, though the fruit is a trifle too much corrugated to please some; still if quantity and fair quality are required, this is the variety to cultivate. In the same house were a number of Mr. Taylor's old favourites in the shape of some large bushes of semi-double Zonals, showing their ability to make a rich display, and also produce an almost unlimited supply of useful cut flowers. Guillon Mangilli, *Candidissimum plenum* (Layton var.), Mad. Thibaut, and C. V. Raspail were among the best. Strawberries planted out in pits are giving promise of excellent crop; although a new system to some it seems likely to find many imitators, like several other new departures introduced by Mr. Taylor, as it is evident that for producing a large first-class crop of fruit with a minimum of labour there is no system to equal it.—M. C.

THE CINERARIA AS AN EXHIBITION AND DECORATIVE PLANT.

THE Cineraria should be classed amongst the most useful of our winter and spring flowering softwooded plants. With a succession of plants we can have them in bloom from November until May. For cutting purposes they are most useful, the flowers lasting for weeks when cut,

and for decoration the plants are most valuable in the winter months. I have heard it said they are not worth growing, they are always covered with green fly, &c. My answer is, The cultivator is to blame if such is the case. One cause of failure is not keeping them growing in the early stages. They should never be root-bound. Keep the green fly away by fumigation, as prevention is better than cure. To grow them for exhibition they require very careful culture from the time the seed is sown. The best plants I have ever seen were exhibited at the Liverpool Spring Show of 1885 by Mr. Stephenson, gardener, Park House, Waterloo, Liverpool. They were grown in 10-inch pots. The tallest of the plants, pots included, did not exceed 20 inches, some measuring 3 feet in diameter, with flowers in abundance, of good form and colour. There are three chief points the cultivator should aim at. The first is strong healthy foliage; secondly, dwarf well-shaped plants; and thirdly, good flowers and plenty of them. To get good flowers is a point worth studying.

To have the plants ready for exhibition in March I sow the seeds early in May—that is, for flowering the plants in 10-inch pots. Of course, at some shows exhibitors are limited to 8-inch pots; if such is the case they would be early enough if the seed is sown six or eight weeks later. The seeds can be sown in pots, boxes, or pans, but I prefer the latter. Half fill them with drainage, and fill up with finely sifted leaf mould and sand, press down lightly, and sow the seeds thinly on a level surface, cover very lightly with sand, give a light sprinkle of water with a fine rose, and place in a temperature of 55° to 60°, place a piece of glass over the pans, and shade from sun. Be careful in watering when the seedlings come up, as they are liable to damp off, especially when sown too thickly. When the seedlings have two or three leaves prick them 4 inches apart into boxes. Be careful in moving the plants at this stage. Get all the soil possible with the roots; if not attended to in this respect it might be the cause of them remaining dormant for a long time. The compost at this period of their growth should not be too strong, but gradually strengthen it every time of potting. What I think suits them best at this time is a compost of three parts leaf mould, one of loam, with a little soot and sand added, plenty of the last named, I think, is most beneficial; do not press the soil too firmly in the boxes, place them in frame, and keep close for a few days. Syringe lightly over on fine mornings and early in the afternoon, which will be sufficient water until their next move. Ventilate night and day in favourable weather, and fumigate them moderately every two or three weeks. The leaves should be dry when that operation is performed.

In a few weeks shift them into 4-inch pots, using the same compost as before with a little manure added. Keep the neck of the plant up above the soil; potting too deeply with careless watering is, in my opinion, the cause of so many damping at the collar later on. Examine the plants at intervals to see if they require potting. The chief point in their culture is to keep them growing. If they get root-bound before the final potting it gives them a check from which they never properly recover again. The next shift would be into 6 or 7-inch pots, the same compost as before, place back in frame, and shade on all bright days. Take great care in watering the plants from this time onwards, for if the soil gets sour it stops their progress at once. Sprinkle the plants daily with clear rain water, and fumigate occasionally. Give the plants all the light possible on dull days, and keep them close to the glass. The last potting into 10-inch pots would be about the beginning of October, using the same compost as before with a little of Clay's fertiliser added. Place 2 inches of good drainage in the pots, and have the soil moderately dry. Do not pot too firmly, and keep them near to the glass, giving all the light and air possible in good weather. Take them out of the cold frame as the weather becomes colder into a pit or greenhouse. I should never let the temperature fall below 45°, nor rise above 50°. Syringe only on fine mornings. As the pots become full of roots occasional doses of liquid manure will benefit them. I use cow manure, soot, and sheep manure, put it in a bag, and let it stand in a tub of water for a few days, when it will be ready for use. Every alternate watering will be quite often enough for the application. Discontinue shading from November until they flower, and shade from sun to keep the flowers fresh. Thin some of the weakest buds where there are too many, and prepare stakes painted green, and stake when required. Take great care in packing the plants when going to a show, and take a couple of extra plants in case any are damaged in transit.—W. ROBERTS, *L'wyngwern Hall, Machynlleth*.

ANTHURIUM VEITCHI.

TEN years ago this magnificent and distinct Aroid was introduced to this country from Columbia, and though from a natural slow increase it is not yet frequent in gardens, there are some grand specimens in cultivation now. One of the finest of these is the superb example in Baron Schröder's collection at The Dell, Egham, which is depicted in the illustration (fig. 62) prepared from a drawing of this celebrated plant. It has three dozen beautiful leaves, not 2 feet and 3 feet long as they are generally described in books or catalogues, but 4 and 5 feet in length and showing the peculiar rich metallic green colouring and regularly waved surface to perfection. Many of the ornamental-leaved Anthuriums, like *A. Warocqueanum*, *A. crystallinum*, *A. regale*, and *A. magnificum*, must be included amongst the most handsome of fine-foliage

plants, but *A. Veitchi* will always take a high place amongst the best, and some would prefer it to any of the others.

They all need a stove temperature, a moist atmosphere, and moderate shade, as the leaves are liable to be scorched if unduly exposed to bright sun. Good lumpy turfy peat, with a little sand and pieces of charcoal, makes a suitable compost, draining the pans or shallow tubs plentifully, and supply water liberally.

INDIAN EXPERIENCES.

(Continued from page 312.)

CISSUS DISCOLOR is another beautiful object in these forests during the season of moisture, making its appearance as suddenly as the last

ing excursion with a friend, and happening to be in a part where this *Saccolabium* grew rather abundantly, and was then in flower, we sent a cooly to collect a few plants to take home with us; but picture our dismay when he returned to camp after a pretty long absence with a huge round basketful of plants all in full flower on his head, a broad grin on his face, and looking mightily pleased at his success as a plant collector. The sight was a sad one notwithstanding the rare beauty of the flowers and their exquisite scent. The massive wreaths of bloom were huddled together with leaves and long roots torn from the trees, and overhung the rim of the basket in profusion. What could be done with this load of wealth? Only this, a few plants were selected to be taken home and the rest left in the jungle to perish.

But, perhaps, the most wonderful instance this district of Wynaad affords of the climatic privation, if I may be allowed the term, to which a plant may be subjected without the intervention of death, is yielded



Fig. 62.—*ANTHURIUM VEITCHI* (Baron Schröder's specimen).

named plant, and quickly festooning Bamboo clumps and forest trees with its creeping stems and velvety leaves, both of which totally disappear with the advance of the dry weather. *Dendrobiums* may be found growing on the branches of deciduous trees on lofty hillsides fully exposed, and looking as lifeless as a Heath that has passed a winter in a London drawing room, but only waiting for the transforming influence of the south-west monsoon rains for a renewal of its vigour and beauty, making the traveller feel that it is indeed a privilege to see these plants growing in a state of nature. *Saccolabium guttatum* I have found frequently under circumstances differing but very little from the foregoing, with the exception that it is generally at a somewhat lower elevation. It is mostly seen on the branches of dwarf deciduous trees in low jungle, its sweet-scented and beautiful flowers betraying its hiding places. I can remember being once greatly grieved at the destruction of a large number of plants of this beautiful Orchid. I was on a shoot-

by the *Impatiens Jerdoniæ*, a plant found abundantly on the plateau of the Bramagberry Hills, a range dividing the Collectorate of Malabar from the Province of Coorg, and rising to an elevation of a little over 5000 feet above sea level. It is also found in considerable quantities on the Neilgherry range, whence, I believe, it was first introduced into England by the late Mr. G. McIvor. The Bramagberry range is well within the influence of the south-west monsoon, and subject to a very heavy rainfall from the middle of June till the end of September, probably not less than an annual average of 200 inches falling between the above dates. The plant grows on the branches of trees, which on this plateau are rather stunted, and from the nature of the climate are clothed with Mosses and Lichens. It flowers during the month of October, and lasts a considerable time in beauty, literally clothing the branches with a mantle of its lovely scarlet and yellow blooms, making the woods or sholahs look gay beyond description.

Between the above dates little or no rain falls, the grass on the land that separates the detached woods or sholahs becomes dry and withered, and is at last destroyed by the annual fires that lick the plateau and mountain sides. Strong and cold east winds blow from the Mysore for months with a burning sun overhead. At the close of this period of trial the Impatiens plants, reduced to one-fifth their flowering size, hang from the branches looking as dead as anything in Nature can possibly look, and no one who has seen the plant in this phase of its existence can do otherwise than marvel at the annual transformation it must undergo before it can be again seen robed in its former floral splendour.

I remember having collected a large number of plants in their dried condition in the year 1874 or 1875 for Colonel Boddome, who was then Conservator of Forests in Madras, for transmission to Kew, as, he informed me, they had lost the plant there at that time. I never heard if the plants reached Kew in safety, nor have I seen it since my return from India, and, of course, am not acquainted with the modes of cultivation adopted in England, but the above are the conditions under which it is found in its native habitat.

Another fact which, I venture to say, points in the direction of the necessity for allowing plants from arid regions under artificial cultivation in England a long season of rest, is this, that in the part of India I am writing of all the plants above named, with innumerable examples besides, never, by any chance, cross the border land between the arid Bamboo tract into the cooler and more moist forest region in search of a more congenial home. There is nothing to prevent this did Nature dictate such a course, yet the rigid line, as seen in the vegetation, between the typical Bamboo and forest tracts is sharply defined and inflexibly upheld, and has been so, in all probability, for many ages; and, what is still more wonderful, this line of division is not confined to the vegetable kingdom, but is extended to the animal kingdom also, the animals peculiar to one region, which are perfectly distinct, never encroaching on the other.—PLANTER.

(To be continued.)

ANGIOPTERIS EVECTA.

AT Blacklow House, Roby, Liverpool, this majestic Fern may be seen at its best. It was planted in 1863 by Mr. Banner, the present proprietor, in an artificial rockery, at the base of which is a pond into which the roots have long since found their way to the immense benefit of the plant. Mr. Pinnington, the gardener, has annually to cut away many fronds, or the plant would very soon smother its neighbours, it having overgrown its allotted space, though now it has fourteen to twenty large fronds from 12 to 14 feet long, besides many young ones. Grown in large pots or tubs this makes a splendid exhibition Fern, the secret in its successful culture being plenty of root room and plenty of water. Under those conditions, as at Blacklow, it is not troubled by scale, &c., as generally found in out-of-the-way corners in old-established gardens. I mention old-established gardens because it is rarely seen in modern ones.—BRADWEN.

CUCUMBER CULTIVATION.

(Continued from page 327.)

EAETHING THE PLANTS.—Soil must be added to the sides of the hillocks or ridges as the roots extend, and may be continued from time to time until the allotted space is filled. It should be placed in the house to warm before being added to the sides of the hillocks or ridges, and should be made moderately firm. The soil must be moist, so as not to necessitate water being given at once. Warm and moist, the roots will take to it quickly. Only add sufficient at a time to cover the roots.

TRAINING.—Train with a single stem to the trellis. Let the lead advance about one-third across the trellis, then pinch out its point. This will cause the laterals to extend more quickly, and these should be disposed evenly over the trellis, so that when they have grown 12 to 15 inches they will be that distance apart, and their points may then be pinched. In this way proceed until the trellis is covered. This will give shoots 12 to 15 inches distance apart at their widest part all over the trellis. After the first stopping fruit will no doubt show on the laterals. These may be allowed to bear if fruit is wanted, but it is well to be as sparing of taking fruit in the early stages as possible, so as to have the plants strong before they are allowed to bear much. When a shoot is stopped another should be taken from as near its base as practicable, so as to supplant it after fruiting, and train it in between the other growths, so that the trellis will be covered with shoots at 12 to 15 inches distance, and from their base are other shoots trained in to succeed them in bearing, those fruiting in the first instance being cut out, except primaries, and even these should have a growth taken near them, and so keep the trellis well covered with growths—some fruiting, others growing to succeed them in fruit—so that the trellis will be covered with growths in various stages of development about 6 to 7½ inches apart. Growth that have fruited being cut out more light will be admitted, and allow of others being trained in their place. All shoots not wanted must be rubbed off whilst small; the less growth they are allowed to make the better,

only allowing shoots that will be required for covering the trellis, and keep up a successional supply of fruit. Secure growths in all cases loosely to the trellis, always allowing ample room in the ties for swelling. Avoid making large reductions of foliage or growths at one time; do it a little at a time and often.

STOPPING.—Attend to the stopping regularly two or three times a week when the plants are in free growth, but when the weather is cold, or during the dull dark days of November and December and into the new year, the plants will not grow much, and the stopping will need to be less frequent; indeed, the object at these times is to secure growth, so as to keep up root action. As a rule stopping should be practised one joint beyond the show of fruit, and in the case of vigorous plants it may be practised at the fruit, so as to keep the growths as short as possible. The stopping should be done early, merely taking off the point of the shoot at a joint. To allow growth to be made and then cut back is only wasting the plant's energies, and giving a check to the roots.

Remove tendrils and male flowers as they show, pinching or cutting them off clean, as any jagged parts are likely to induce decay. In the dull dark days of November, December, and January the fruit does not sometimes swell freely, the fruit in fact refusing to swell. In that case the atmosphere must be kept drier and the blossoms fertilised about midday, male blossoms being retained for that purpose, and when sufficient fruits are swelling remove all male flowers.

Remove any leaf showing decay at once, as it spreads with amazing rapidity. Such only keep light and air from leaves performing those functions in a much higher degree, therefore keep as even a spread of healthy green leaves as possible. In removing bad leaves and exhausted growths leave as small an amount of stem or footstalk as possible, breaking the leaves off clean, and cutting the other away with a sharp knife close to the main shoot. If there is any exudation from the wounds dry them with quicklime.

CROPPING.—Crop lightly when the plants are young, especially those for autumn and winter fruiting. The autumn fruiters need not be allowed to fruit until the end of September, so that they will afford a full supply in October, November, and December, the supply then—i.e., Christmas onwards—being taken up by the September-sown plants, no fruit being sought until late November or early December, which will allow the plants to become vigorous and to have made a good growth. If fruit must be taken only allow a very moderate crop, and at no time crop heavily if the plants are to give a successional supply. If the plants are from an August sowing the ambition of having fruit in the autumn months is great, and very often the Cucumbers are much weakened, not giving anything like so good a supply as wished in the winter. Take very few fruits from those plants in November, but secure as much strength as possible, reserving their forces for fruit showing early in December to give a full supply from Christmas to April. Happily the demand for fruit in late autumn and early winter is not great, so that there is no need to crop the plants injuriously, but it is a better plan not to crop at all, having plants in pots for a supply of early fruit. The January sown plants having finer weather before them may be cropped earlier; still early fruiting has a very enfeebling tendency.

As soon as the fruit becomes large enough cut it. Allowing fruit to remain is taking support that would have sufficed to swell other fruit of a size fit for table, but when cut if the stem ends are placed in saucers or soup plates with about an inch depth of water they will keep sound in a cool place for ten days to a fortnight.

FEEDING.—When the plants are well established liquid manure may be given if they lack vigour, but as a rule it will not be required until they commence fruiting, when it may be given every alternate time water is required; and if the plants have only a small rooting area, and are carrying a full crop, every time. The best liquid is the drainings of dung yards, cow byres, &c. It should be given at a temperature of 80° to 90°, and be diluted with water according to its strength. If thick with six times the quantity of water, but for ordinary purposes about half the quantity of water will be sufficient dilution. The variability of the strength of liquid from tanks is a difficult matter to deal with; therefore it is safest to use that of known strength. A peck of cowdung or sheep droppings to thirty gallons of water is safe. Soot is also good, a peck to sixty gallons of water. They may be used alternately. Whenever liquid is given apply it sufficiently to pass to the drainage. When in full bearing and the roots in full possession of the bed liquid manure will be required twice a week. It is a good plan to water with rather strong liquid manure, and follow at once with a soaking of tepid water. A sprinkling of any of the advertised fertilisers on the surface and washed in are excellent.

The bed being fully earthed and roots appearing on the surface apply a light dressing of fresh compost, adding to it an equal part of horse droppings that have been placed in a shed and turned over

a few times to sweeten. A surfacing of this kind an inch thick every fortnight after the plants come into bearing will help them immensely, maintaining a good root action, and so enabling them to take most any amount of support. Plants that have been in bearing some time will be much benefited by having some of the surface soil, and at the sides of the bed removed without much injury to the roots, and fresh compost supplied had in the house a few days to warm. If bright weather prevail shading will be necessary until the roots take to the fresh soil.

SHADING.—This will not be required before April, and the best means of affording it is by roller blinds. Scrim canvas is the best material, as it modifies without breaking the light to anything like the same extent as a closely woven material. Shading will only be required for a few hours before and after noon, and no more should be used than is necessary to insure the safety of the foliage. Permanent shading is bad, and ought not to be resorted to, though there is an excuse for it on the non-ventilating system in the height of summer or such weather as sometimes prevails in July, but that will be alluded to on a future occasion. Judicious shading is a great aid to cultivation, but it should not be resorted to without necessity. It is particularly valuable in bright weather succeeding a dull period, so as to keep the foliage from flagging—the exhaustion of the plants from excessive evaporation.

PLANTS IN HOT-WATER-HEATED PITS.—Sometimes Cucumbers are grown in pits—the plants having the Vines trained over the surface of the bed—for winter use. It is not a desirable mode of cultivation at that time of year, but it is very common to train the plants that way for spring fruiting. The plants are pinched at the second rough leaf, and the growths arising are pinched at about the third leaf, and are afterwards trained over the surface of the bed, and pinched when about a foot from the sides of the pit. Such pits are very useful for early spring work, but the treatment being the same as those grown in pits and frames heated by fermenting materials more extended cultural directions are deferred.—G. ABBEY.

(To be continued.)

ROSE-GROWING FOR BEGINNERS.

(Continued from page 334.)

ROSES IN POTS.

THERE is no doubt that these are better on their own roots; and if one be gifted with the patience of Job, it is probable that his patience will in due time be rewarded; but in these high-pressure days, when everybody lives, metaphorically speaking, at the rate of forty miles an hour, we cannot afford to wait; our wants must be supplied, and the only course to adopt is to procure budded or grafted plants. Of these two kinds I most certainly recommend the first-named. My reasons, which I think are strong enough to convince the greatest sceptic, are to be found in the article on Grafting. At any rate, the beginner who is in a hurry and wants to start at once, had better have some budded or grafted plants to begin with, for if he goes in for those on their own roots he will find them so small that they will require to be grown on for twelve months before they will be worth anything. Even then he can only get the older varieties, for while it is an easy matter to procure grafted plants of any new or recently introduced kind, it will be quite impossible to get them on their own roots. The reason is not far to seek. A cutting to make an own-root plant can hardly be made with less than two buds on it, while these two buds used for grafting would at once produce two plants, and the two plants grown on and cut up for grafting again could be almost indefinitely reproduced, while the solitary cutting was making its slow progress towards rooting and becoming a plant. The only way to get our plants on their own roots, I mean those of recent introduction, is to grow them ourselves, and have patience—in the meantime, as I said before, growing such plants as we can procure.

Five-sixths of the Roses in pots sold throughout the country are grafted plants; in fact it is not easy to get budded plants established in pots; the fatal facilities for grafting prevent this. Budding can only be done when the stocks are in a free-growing state, and except they are forced under glass this will only be during summer. If, then, a nurseryman had Roses on stocks in pots, in June let us say, the inserted buds remain dormant until the next spring, and it will be summer again before the plants are nicely grown. Here are twelve months occupied in the growing of the same plants, which science misapplied can produce in six weeks! Here is the room they occupy taken up for twelve months; and even beyond that, twelve months' attention is required. Even where the legitimate methods of grafting are adopted, good plants are grown, sold, and delivered, all within a period of three months.

I do not suppose that these remarks, to the disparagement of grafted plants, will please all. I have paid for my experience,

which has been very considerable, and my advice to the beginner is to have budded plants if possible. If he can afford to wait a little, the cheapest way to get together a stock of these is to buy in the autumn a lot of nice plants from the open ground and pot them up, plunging them outside; if they are Tea Roses they would be better in cold frames. For the first year let them be treated as outdoor plants; during the season they will give some blooms, and if properly pruned and attended to they will be nice plants in twelve months. Even in the first spring after potting as advised, these plants—if placed in a cool house so that their young growths will be protected from frost—may be pruned early, and grown in this way they will grow and bloom well, but it would not be advisable or safe to subject plants like these to any heat whatever—that is, excepting sun heat; it being a fact which cannot be too well known, that Roses, to be grown successfully in heat, must have their pots full of roots, or, in other words, the plants must be thoroughly established. There is just one other thing to be considered in potting plants which have been grown in the open ground, and that is this, that the growth of such plants is much more vigorous and the shoots much thicker than those of the same varieties grown in pots from the first. The thickness of these shoots may not be a drawback in all cases, but where we propose to bend or tie down the branches of pot plants for the purpose of training them, or getting the buds to break evenly, we shall find the finer growths and thinner shoots which original pot plants produce much easier to manage.

Now I will suppose that the beginner has not much time to spare in the training and growing of his pot Roses, and that he will be glad to hear of a rough and ready way of growing them. He starts, we will suppose, with a plant from the open ground, and he pots it. But here we must pause to say a few words on potting. Open-ground Roses for this purpose should be procured with as many wiry or fibrous roots as possible, and such roots should not be cut off. A pot should be selected that will hold them all, and in potting them the best way to get them in is to turn the plant round and round in the pot, so that when the operation is finished the roots will be coiled round the sides. Plants worked on the seedling Briar will be found, I think, to have the greatest quantity of suitable roots for pot work. If the plants have only thick bare roots with very little fibre about them, they must be cut right back, and in course of time they will emit fibrous roots from the cut parts; but where the roots have to be mutilated in this way, the plants cannot be expected to do so well the first season as those which are provided with fibrous roots. Where we propose to pot up plants which are growing in our own garden, this should be done while the leaves are still green, after which, if possible, they should be placed in a cold house where the sun does not penetrate, and which house should be kept closed, and the plants syringed two or three times a day. Under such treatment, providing the operation be done quickly and well, the plants will keep their leaves and suffer very little check indeed. But if we have no conveniences of this kind, the plants may be quickly potted, the pots plunged anywhere out of the sun, and they will take no harm. Even if we propose to buy in plants for potting, I think it would be advisable to get them about the middle of October. Plants taken up so early as this in the season, as a rule come to hand very much shrivelled and with withered leaves. Under these circumstances the best plan to adopt is to dig a trench and bury the whole lot, root and branch, for about a week, taking care they get well watered. At the end of this time they may be disinterred, when they will be found very much the better for their temporary burial, and they should then be potted.

Hybrid Perpetuals require a good stiff soil to grow in, either in or out of pots. For pot work the foundation of the soil should consist of old sods or turves cut from a clay pasture, with old horse or cow manure added, but here is the prescription:—

One barrowful old sods and good loam,
Half barrowful old cow manure,
One-eighth barrowful leaf mould,
One-eighth barrowful sand or charcoal (the latter preferred).

The pots must be well drained, and the larger sizes should have a correspondingly greater quantity of crocks in the bottom. A handful of bones broken small will add considerably to the vigour of the plant in due time. Above these should come some of the larger pieces of turf to prevent the finer soil from washing down and choking the drainage. On the top of the coarser lumps place some of the finer soil—none of this should be put through a sieve, but simply chopped and broken up roughly. Then place the plant in position, keeping the roots as near the surface as possible. Roots can always be got to grow downwards, not often upwards. In pot work it is not absolutely necessary that the junction of scion and stock should be below the surface. It is advisable, however, as it gives the plant a chance of getting to some extent on its own roots,

but the position of the roots is the main point here. To make the plant firm in the pot, a potting stick is necessary. This simply consists of a stick about 15 inches long, and an inch or so in thickness. With this the operator must ram the soil into the pot all round, until it is as firm as a rock. If we intend to be successful this must be strictly attended to. No beginner ever does pot his plants firmly enough. Anyone who visits a nursery should ask to be shown through the potting shed, and if there is any work going on there he will be surprised to see how firmly the plants are potted—at least, I was. The potting of all kinds of Roses will require to be carried out in the manner just described.

Now we return again to a plant freshly potted from the open ground. Fig. 63 at *g* shows such a one. All this requires the first season is to be cut back to the mark *x*. If a cold frame be available it can be placed therein when potted, and may be pruned as soon as the buds begin to swell. No liquid manure of any kind should be administered during the first season. After blooming, as soon as the weather is mild enough, the plant may be plunged outside in any convenient place where it will get air and sun. Most Hybrid Perpetuals treated in this way will give another crop of flowers in the autumn, but if we wish to make the most of our



Fig. 63.

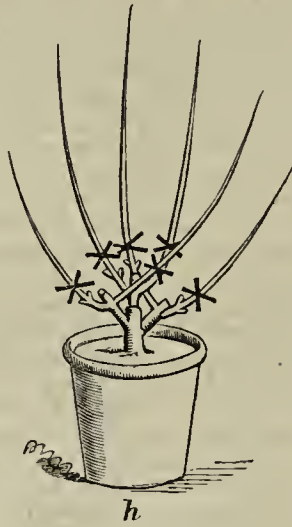


Fig. 64.

plant, these should be pinched off directly they appear, while they are small buds, as it is not good policy to exhaust the plant by over-blooming before it is established in the pot. If we wish the plant to grow larger, we should examine the roots occasionally, by turning it upside down, loosening the pot by tapping the rim on the edge of the bench, and while one hand holds the plant, the pot may be carefully lifted off with the other. As soon as we find that the roots have filled the pot, we must give the plant a shift into a larger pot. If a small grower, a pot one size larger will be sufficient, but if the plant is a vigorous grower, and likely to make a quantity of wood and roots quickly, then it may have a pot two sizes larger. The pot must be drained as before advised, and when the old drainage has been removed from the roots the plant should be placed in the new pot, sufficient soil having been added beforehand to allow the plant to occupy a similar position to what it did in the old pot. In small shifts the potting stick before mentioned will have to be much thinner, and in ramming down the soil all round, great care must be taken not to break the roots, which are always most numerous round the sides of the pot. The new soil must be made as firm as the old; otherwise, when the plant is watered, the water will make its way down the inside of the pot, while the interior soil in the centre of the ball may remain quite dry. If we do not wish our plants to grow larger each year, as soon as we get them into fair-sized pots we must be careful not to repot them oftener than is necessary, and when we do it, to avoid large shifts. Even when we follow these rules, our plants will in time get too large for us—except we have spacious conservatories for their accommodation—and then the only plan is to shake out the roots and replace them into smaller pots, as at first.

Fig. 64 at *h* shows the plant the second season after potting, and I have marked the shoots for pruning. If three buds be left on each shoot here, and they were all to grow, a very bushy plant would be the result. But as a rule two shoots will generally take the lead, and in many cases only one, and then it is advisable to remove the weaker shoot or shoots as soon as we see that they are not going to develop. The shoots can best be got to grow by tying them down, but in the case of a plant like the one in fig. 64 it would not be necessary, I should say possible, to do this. In after years, when the growths will be thinner, it might be advisable, and so I may say

here that it is best done by fastening a piece of strong wire round the rim of the pot, and attaching thereto pieces of raffia, the other ends of which are fastened to the shoots. Great care must be exercised in bending the branches down, otherwise the shoots will break. When the beginner has broken off a few—which will happen very soon after he commences the work, in most cases—he will know how to do it perfectly. Where it is proposed to bend the branches down they would require to be left longer in pruning. When the buds are fairly started the shoots may be released, and as each little branch develops, it will require to be tied up to a small stick prepared for the purpose. These sticks should be of such a length that when the plant is in bloom the flowers will stand up well above them, and if they are placed permanently in their places while the branches are still small, the leaves will grow round them in such a way as to almost conceal them altogether. Plants can never be made to look so well, if the sticks are only placed in position at the last moment.

Disbudding is a great assistance in growing Roses in pots. All the weak buds, and those pointing inwards, except it is possible to train these latter to the outside at some future time, should be removed. If three buds on each shoot could be got to grow and develop on the plant in fig. 64 at *h*—and I do not think this would be anything uncommon if the plant were an old-established one—there would be eighteen shoots, and there are varieties which in this case would give us a bloom on the tip of each shoot. This, in my opinion, would be too many to allow on the plant, so I should remove about half a dozen as soon as they became visible, and the remaining blooms would be all the finer in consequence. I do not wish my readers to think that all the Roses recommended for pot culture will give the number of blooms, nor even the number of shoots, I have mentioned here, but there are some that do, and whether we get three, or three dozen, the treatment, speaking generally, should be the same. In all cases the state of the plant, and the treatment, will have something to do with the number of shoots—the stronger the plant, the greater the number. Directly after the plants have bloomed they should be repotted, provided they are pot-bound—that is to say, if the pots are quite full of roots. After this operation is completed they should be kept close in a house and syringed, with the object of keeping their leaves on, which will enable them to make new roots at once.

Anyone who grows Roses well in the open ground should be able to do them equally well in pots with a little care and attention. In working with pot plants, we must remember that the whole of the roots are contained in the pots; they are entirely under our control, and are bound to get all we give them. A dose of strong stimulants or liquid manure of such a strength as would do no injury to a plant in the open ground might be enough to kill a plant in a pot immediately. The same remark applies to watering. In the open ground any excess of water gets away by means of the drainage, but a pot plant is in a very different position, and may, by a little carelessness or ignorance, be very easily kept in a constant state of puddle, which, it is needless to say, is very detrimental.

So far, I have spoken only of the Hybrid Perpetuals. I shall refer to the Tea Roses, which answer capitally when grown as pot plants, in another place. As the Hybrid Perpetuals can be grown with so much less trouble and attention, planted out in the open ground, than if they are treated as pot plants, it is to be presumed that those who grow them in this latter way, intend to keep them, or at any rate to bloom them, under glass. I am of opinion that where one has facilities for growing Roses in the open, and also in a greenhouse, the plan which would give the best results would be to devote the house entirely to Tea Roses—in pots, or planted in borders—and to depend on the garden alone for a supply of blooms from the H.P.'s. But many people may not be of this opinion; they may prefer the more decided colours of the H.P.'s as compared with the more delicate and paler hues of the Tea Roses. These will find some further remarks on this part of the subject under the head of "Forcing."

LIST OF HYBRID PERPETUALS SUITABLE FOR POT CULTURE.

Alfred Co'omb.	La France.
Baroness Rothschild.	Madm. G. Luizet.
Beauty of Waltham.	Madm. Lacharme.
Boule de Neige.	Madm. V. Verdier.
Capt. C.risty.	Marie Baumann.
Catherine Soupert.	Marie Rady.
Chas. Lefevre.	Marquise de Castellane
Dr. Andry.	Merveille de Lyon.
Dupuy Jamain.	Senateur Vaisse.
El. Morren.	Violette Bowyer.
Heinrich Schulteis.	
John Hopper.	Souvenir de la Malmaison (B).

—D. GILMOUR, JUN.

(To be continued)

ROYAL METEOROLOGICAL SOCIETY.

At the last monthly meeting of this Society, Mr. W. Ellis, F.R.A.S., President, in the chair, Mr. Robert Barnes M.D., F.R.C.P., and Mr. L. L. Iatrobe-Bateman were ballotted for, and duly elected Fellows of the Society.

The following papers were read:—

(1.) "The Storm and Low Barometer of December 8th and 9th, 1886," by Mr. C. Harding, F.R.Met.Soc. This gale will long be remembered as the one in which twenty-seven lives were lost in the lifeboat disaster off Formby through the capsizing of the Southport and St. Anne's lifeboats. The violence of the storm was felt over the whole of the British Islands, as well as over a great part of the Continent of Europe, the force of a gale blowing simultaneously from Norway to Spain. The strongest force of the gale in the United Kingdom was experienced in the west and south-west, and the highest wind force recorded by any anemometer over the country was a velocity of eighty miles in the hour, registered at Fleetwood, whilst at Valencia, Scilly, and Holyhead the velocity reached seventy miles in the hour. The most exceptional feature of the storm was the extraordinarily low reading of the barometer and the long time that the mercury remained at a low level. The absolutely lowest authentic reading was 27.38 inches at Belfast, and the barometer fell below 28 inches over a great part of England, Scotland, and Ireland. At Aberdeen the mercury was below 28 inches for eighteen consecutive hours, and below 29 inches for more than sixty hours, whilst in the north of England the barometer readings were equally exceptional.

(2.) "Report of the Wind Force Committee," drawn up by Mr. G. Chatterton, M.A., F.R.Met.Soc. In this report, which is a preliminary one, the Committee have dealt mainly with that portion of the investigation relating to Beaufort's Scale of Wind Force and the equivalent velocity in miles per hour. The Committee have compared the velocities as recorded by the anemographs at Holyhead, Falmouth, and Yarmouth, with the entries of Beaufort's Scale in the logs of the neighbouring lightships and lighthouses for the year 1881, and they give the results in a table. After a careful consideration of the whole of the results of this investigation, the Committee are of opinion that the velocities shown by the Yarmouth anemograph, corresponding to Beaufort's Scale as recorded on board the lightships, are too high, and that the velocities shown by the Falmouth anemograph are probably too low. The Committee, however, have not yet had before them sufficient data to determine with any degree of certainty the relation between Beaufort's Scale of Wind Force and the equivalent velocity in miles per hour; neither are they able to recommend any existing scale that can be adopted or modified.

3, "A New Form of Velocity Anemometer," by Mr. W. H. Dines, B.A. F.R.Met.Soc. In this instrument an attempt has been made to measure the velocity of the wind by the rotation of a small pair of windmill sails, the pitch of the sails being altered automatically, so that the rate may always bear the same ratio to that of the wind. The mechanical details are briefly as follows—A helicoid is fixed at the front, and a small pair of sails of variable pitch at the back of a steel rod, and just behind the helicoid a light fan, which can turn on the same axis, but is independent of the helicoid and sails. If the rotation be too rapid the fan turns in the same direction as the helicoid, and by its motion alters the pitch of the sails, so that their motion is retarded; if, on the other hand, the friction is increased, or from any other cause the motion becomes too slow, the fan is turned in the other direction, and the rate is increased. The motion is communicated to a vertical rod which passes down the hollow pivot on which the instrument turns. It is kept facing the wind by a vane. It is convenient to connect the vertical shaft to the recording dial by a light flexible wire, all that is necessary being to place the dial approximately beneath the anemometer. By this means the trouble of ascending a high tower or ladder is avoided, except where oil is required.

4, "Description of Two New Maximum Pressure Registering Anemometers," by Mr. G. M. Whipple, R.Sc., F.R.Met.Soc. The simplest instrument is a modification of the Lind's, Hagemann's, or Pitot's water pressure anemometers, provided with an apparatus for registering the maximum height the water attained during the period which elapsed since the last setting of the instrument. The second form of registering maximum pressure anemometer is derived from the ordinary pressure plate instrument. A circular metallic disc of $9\frac{1}{2}$ inches diameter, exposing a surface of half a square foot is kept at right angles to the wind by means of a suitable vane. This disc is perforated by eight circular apertures, each of $1\frac{1}{2}$ inch in diameter. Behind each aperture a disc $1\frac{1}{2}$ inch in diameter is loosely held *in situ* by means of a bent lever loaded with a weight. These weights are arranged so as to press upon the different discs with pressures proportionate to the values usually assigned to wind pressures measured by the various degrees of the Beaufort scale.

FLOWER ROOTS FOR THE GARDEN.

"At length we seem to be getting a fair start for summer," says a writer in the *Daily News*. "Winds have become genial, sunbeams warm, and the mellifluous notes of the peripatetic nurseryman come swelling on the breeze with a pleasant suggestiveness of the time of year, and to the suburban gardener with a little loose cash in his pocket not altogether without a certain seductiveness. There is always a possibility that the season may have something exceptionally good or attractively novel to offer, and as the flower merchant comes up with a

fine Fuchsia or a handsome Pelargonium under each arm, and backs his donkey-barrow to the garden gate with a broad expanse of crimson Daisies, blue and yellow Pansies, and variegated Primulas and Polyanthus, the amateur gardener, satisfied though he may be that his borders are quite full and he has no need of anything, will, ten to one, allow himself to be wheedled out. He will go out of mere curiosity to see if there is anything new, and eventually will be very likely to part with his cash for something at least as old as himself. Some flower it will probably be, association with which he has brought along from his boyhood. People who take little or no personal interest in their flowers may change the fashion of their blossoms as often as they change the cut of their garments; but it is very curious to observe how conservative and unchanging are the tastes of the cottage gardener—of those who tend their own gardens and grow their own flowers, and into whose lives they enter as part and parcel of their happiest and pleasantest experience.

"This will become apparent to anybody who will look over the displays of the street barrows or the root stalls in Covent Garden, or will inquire into the staple growths of the 'root trade' as it is carried on around London. There are scores, perhaps hundreds, of acres within a short radius of London devoted exclusively to flowers, almost every one of which is what we understand by an 'old-fashioned' flower, and which we can all remember as popular favourites from our earliest days, and for which the demand is every year on the increase, notwithstanding the immense developments of flower culture in entirely new directions of late years. One root-grower's ground comprises over 20 acres, and it is almost entirely given up to the cultivation of old cottage garden favourites.

"The ground we have alluded to is an open expanse of a tolerably free loam, without trees or buildings to intercept sunshine from morning till night, or to screen it from winds from whatever quarter they may blow. It slopes gently down to the south, and is bounded at the bottom by the Edmonton brook, from which a good supply of water is always to be had. The land is ploughed and harrowed, and the cultivation looks to be like that of an ordinary farm, only instead of long stretches of Clover or Sainfoin or Turnips, here are almost interminable broad lines of Sweet Williams, Snapdragons, Pinks and Canterbury Bells, Pansies and Hollyhocks, and other equally familiar old friends, all of which, or nearly so, are grown for the London market. Amongst the largest crops on the ground is one of a plant which Londoners are wont to dignify as a garden flower, but which in many parts of the country is a weed out and out. This is the humble little 'Creeping Jenny,' though, by the way, nobody in the trade ever calls it 'Creeping Jenny.' It is always 'Jenny' without the 'Creeping,' just as 'Sweet Williams' are always 'Williams,' and 'Wallflowers' are always 'Walls,' and so on with a rigid economy of words really most exemplary and delightful in the days of agitation verbosity. 'Jenny' is the little trailing plant with yellow blossoms which grows luxuriantly in the sedgy grass on the banks of the Thames and Cherwell, and no doubt most other streams. About two acres of land is devoted to this plant alone, and one morning recently there were sent into market from this one ground a thousand dozens, and they were all sold before they got there. This plant is used largely for window boxes and vases, and is extremely pretty so long as it finds plenty of moisture, but probably out of the thousand dozens just referred to at least nine hundred dozens of the plant were doomed to a lingering death from drought. Of Pinks and Carnations there are several varieties grown here, and two or three acres of ground are devoted to these popular favourites alone. Canterbury Bells have a quarter of an acre devoted to them, and Sweet Williams half an acre. Thrift, Lupins, scarlet Lychnis, Daisies, and double Feverfew, Polyanthus, Artichokes, Pansies, and Wallflowers, Stocks, and Dahlias, summer-flowering Chrysanthemums and Mignonette, Lavender, and Southernwood divide between them pretty nearly the whole of the rest of the open ground. There is about an acre of glass, and under this there are enormous expanses of 'bedding-out stuff'—Lobelias, Calceolarias, white and scarlet Geraniums, and so forth. From twenty to thirty hands are employed, and one man is engaged all the year round in converting Orange boxes, egg-chests, and other receptacles of the kind into suitable forms for the conveyance of the produce to market, or in making the little boxes in which Lobelias, Feverfew, Calceolarias, and so forth are very commonly grown. Before the season commences these are built up in piles like huge haystacks, and afford rather an impressive idea of the magnitude of this, about the roughest and the humblest branch of floricultural business.

"From such grounds as these and from innumerable small growers in all the outskirts of London enormous quantities of roots are every night at this time of year packed in vans and carts and come rumbling into Covent Garden, to be seized upon by the street hawkers, many of whom know at least as much of the trade in old clothes and worn-out boots and shoes as they do of the business in flowers. Some of these wandering merchants are to be dealt with very charily. Generally their flowers are marvels of cheapness, and not infrequently are really first-rate. Large growers find it to their interest to propagate the very best of varieties, and they grow them in the manner best calculated to produce sturdy, vigorous plants. One may buy from a barrow for three-halfpence or twopence many a flower root such as five and twenty years ago could hardly be had at any price; and the magnificent blooms of Pansies and Daisies, among other things which often at this time of year are brought round to our doors, are marvels of cultural development. This year, however, the show is exceptionally poor as far as blossoms are concerned. The season is a good month late, and trade during April has

been very bad. 'While this icy wind is blowing,' said one salesman, 'you can't get 'em to stand at their doors to look, and however loud you may 'oller they won't come down to their front-garden gates. Never had a much wuss April since I been in the trade.' That, however, was a week or two back. Since then we have had some warm and genial days, and the transference from the great market grounds to suburban gardens has been enormous."



KITCHEN GARDEN.

BEETROOT.—An all-the-year-round supply of Beetroot is very desirable in all gardens. It can be used as a salad in winter and spring when all others are exhausted. Roots can be drawn up and used as soon as large enough to be sliced up, and may be taken from the growing quarter until November, when, if lifted and stored, they will remain sound and good until the new Beet is ready the following season. The Turnip-rooted variety is the earliest by several weeks, and it is also the best for shallow soils. A few rows should be grown, but the main crop must consist of Dell's Crimson or Pragnell's Exhibition, two excellent varieties. Sow very thinly in rows 2 inches deep and 15 inches apart; they do not succeed in very stiff soil, and need an open quarter. Thin as soon as they can be handled, and grow them at a distance of 10 inches or 1 foot apart. It is not advisable to sow the main crop before May, as they are apt to become too large and coarse if sown very early.

EARTHING POTATOES.—Early Potatoes are now advancing rapidly and earthing should have timely attention. This applies to all Potato crops. There are some who do not approve of earthing, but it is an excellent practice, as when the crop is heavy, and there are many tubers formed near the surface, many will push through and expose themselves unless the soil is well drawn over them.

RUNNER BEANS.—These are the best of all Kidney Beans from July until November; and although the Dwarf varieties come into fruit earlier and may be grown as a first crop, they are not much valued when the Runners are ready. These should be sown now, and again in six weeks or two months hence. They are very tender while young, and there is no use in sowing them before May. We have tried the plan of raising the young plants in pots, under glass and planting them out afterwards, but they did not fruit many days previously to those sown in the open, and we have ceased to practise sowing under glass. They like good rich soil, and that where the seed is sown should be well manured. The best way is to open a wide drill to the depth of 3 inches, sow thinly, and cover with fine soil. As they grow tall they should stand quite clear of all other plants by about 4 feet on each side. Some are deterred from growing Beans of the Runner type because they cannot find stakes to support them, but it is not absolutely necessary that they should be staked, as if they are cut at 2 feet, 3 feet, or 4 feet from the ground they will bear heavily.

ASPARAGUS.—In some seasons we have cut quantities of this in the open air early in April, but this year it is late, and we are only just beginning. It is of good quality, and promises to be abundant, but now is the time to improve weak roots by giving them a good surface-dressing of soot and salt or guano. Shake it around and over the crowns when it is raining, and it is surprising the good a timely dressing will do. Where planting out new roots was deferred owing to the lateness of the season, they should be at once planted. Do not keep them long out of the ground. Plant in rich, rather light soil, and keep the roots about 18 inches apart each way. Should rain not immediately follow planting, give them a good watering, and they will soon begin to root afresh and form strong plants during the next four months. We lift some hundreds of roots every winter for forcing. A corresponding number have to be planted every spring to keep up the supply. We have just finished planting, and it has become an annual system with us. So has sowing Asparagus seed, and this is another matter that may be attended to now. The seeds are almost as large as small shots. They germinate well, as a rule, and always produce good plants. The soil should be made light and well manured; open drills, 2 inches deep and 15 inches apart; cover as soon as sown, and leave it until the young plants appear, when the Dutch hoe may be run between them.

TOMATOES.—The early spring-sown plants are ripening their first fruits under glass. They are valuable for market, and esteemed as a vegetable. They are being grown more and more, and they cannot be too extensively cultivated. Give those fruiting plenty of liquid manure, that which comes from the farmyard being excellent. Pinch off all superfluous shoots frequently. There is always a danger of their carrying too much wood. They fruit best when well restricted. Being root-bound does not hurt them, especially if the pot is over 9 inches in diameter. Give young plants more root-room. Keep those being trained to wires well tied in. Cut all fruit as soon as it ripens. Plants intended

for open air culture should now be hardened. If they are brought from a warm-house place them in a cold frame. Keep the lights on for a few days. Admit air gradually until they are quite hardy, and then expose them fully. Many plants fail in the open because they are not properly hardened. When they are brought from a warm place and planted in the open they receive a check from which they do not recover for a long time, whereas properly hardened plants ought to grow away from the first. Then they fruit early in the season, and are a great success before the end of the season.

SALSAFY AND SCORZONERA.—These are most useful in the winter, but the seed should not be sown before May, as early plants only seed prematurely. They both succeed in soil which suits Carrots or Beet as their roots penetrate in the same way, and they are best when grown without being forked. Open the drills 15 inches apart, 2 inches deep, and sow very thinly, cover and roll the surface, as they always do best in a stiff soil. Mice are particularly fond of these seeds, and care must be taken that they do not find and destroy them before they have had time to germinate.

CELERY.—Our first crop has just been planted in the trenches, and those having early plants may place them out now. Make the trenches 8 inches deep. If they are intended for one row make them 1 foot wide, if for two rows 18 inches wide, and allow 6 inches for every additional row. We grow our exhibition Celery in single rows, giving a trench to each, as it can be better earthed up than when crowded, but the kitchen Celery is planted in trenches at the rate of four or five rows in each. Our cook prefers dwarf Celery of the Sandringham type, and so do we, as there is too much waste with large varieties. Manure the trenches heavily, and do not plant out until the plants are well hardened. Lift them with good balls, plant them without disturbing these, and keep constantly watered until well established. Give successional plants more room, and sow more seed for a late crop. It will germinate now in a cold frame or in a sunny place in the open air. Maintain a constant supply of Mustard and Cress, sow more Lettuce seed, place out advancing plants, do not let the supply of young crisp Radish decrease, and Dutch hoe between all young crops. Keep weeds down, and on no account allow them to seed.

FRUIT FORCING.

VINES.—*Early Houses.*—Grapes approaching ripening will need a circulation of warm rather dry air, but avoid an arid condition of the atmosphere, which is sure to induce an attack of red spider, and this crippling the foliage will prejudice the maturing of the buds and the ripening of the wood. The foliage must be kept clean and healthy to as late a period as possible. Where red spider has obtained a hold prompt measures for its destruction must be adopted. Some resort to the syringe, which, unless the water be clear and soft, is not to be recommended, as after the Grapes are advanced in colouring the bloom on the berries is apt to be more or less damaged by the water, there being little that does not leave a sediment. Sponging the leaves is a safe means of destroying it, but is a tedious process. Sulphur judiciously applied is the most efficacious. It should be mixed with skim milk, and when the pipes are heated to over 160° apply the sulphur with a brush, and maintain the heat between that and 200° for an hour, and then the heat may be allowed to fall to the ordinary temperature. Choose a calm evening, and the following night it may be repeated. Where fermenting material in outside borders has become cold and wet a portion of it must be removed, for nothing is so injurious as a surface excluding atmospheric influences. Enough should be left to avoid giving a sudden check. Early Grapes that are ripe will only require sufficient fire heat to maintain a circulation of dry air, allowing the temperature to fall to 60° at night.

Keep the soil healthfully moist so as to maintain the foliage in good condition, and a moderate amount of air moisture in order to prevent the foliage prematurely ripening, and it benefits rather than prejudices the keeping of the Grapes. If the Grapes are wanted to hang some little time a slight shade will be beneficial in helping to keep colour, especially in Black Hamburgs. A double thickness of herring netting, or a single thickness of pilehard netting, drawn over the roof lights is sufficient.

Succession Houses.—Thinning both of the bunches and berries must be followed up, also disbudding, tying, stopping, and regulating the growths. Allow crops proportionate to the vigour of the Vines, and as much foliage as can have full exposure to light. Examine the borders at least once weekly, and when dry water freely, assisting those in full foliage and carrying heavy crops with tepid liquid manure and rich surface mulchings, but not thick, 2 or 3 inches of rather lumpy manure, and not very much reduced, being best. Inside borders well drained will take almost any quantity of water after the Vines are in full foliage, and with a full crop of Grapes liquid manure should be given not less distantly than at every alternate watering. Outside borders will not yet require any water unless they are high and dry, when a copious supply of liquid manure at a temperature of 90° will be advantageous. Ventilate early, it causes accumulated moisture to disperse, sets in motion the organs of assimilation, gives texture to the foliage and solidity to the wood, besides securing a full amount of stored up matter, and allow a good high day temperature from sun heat, closing early alike to push ahead the crop and to store the sun-warmed atmosphere. At night a rather low temperature is best, especially to Vines carrying heavy crops which require more time than those but lightly cropped.

Muscats.—The earliest Muscats are just beginning to colour. They take longer to ripen than Hamburgs, and, unlike them, require a moist condition of the soil, being liable to shrivel unless kept well supplied at the roots, and there is a still further difference in their requiring a drier condition of the atmosphere, which is peculiar to all Grapes with the Muscat flavour. When the Grapes change colour we find a thorough supply of water or liquid manure to the inside border, followed by a mulching of short material and rather dry with a surfacing of perfectly dry material, than which nothing answers better than rough-cut straw, will carry the crop to maturity, insuring good finish and preventing cracking in the Black Muscat—a superb Grape when well grown, and the finest of all black Grapes, Madresfield Court. When beginning to colour Muscat of Alexandria is liable to be scorched, for which we find a slight shading of herring or pilehard nets excellent as a safeguard, accompanied with a circulation of warm but not moist air. A little more time is required with the shade, but it is hardly possible to have well-ripened examples of Muscat of Alexandria before the middle of June. Muscats in flower set most freely with a night temperature of 70°, 75° by day artificially, and 80° to 85° or 90° with sun, always with a circulation of air. Liberate the pollen by gently drawing the hand over the bunches or shaking the Vines at mid-day.

Late Hamburgs.—Disbudding, tying down, and regulating the growths must be attended to, but do not be in a hurry in stopping, allowing two at least and preferably four joints of growth beyond the show of fruit, and the laterals pinch at one joint below the fruit, but above it allow them to extend so as to ensure an even covering of the space with foliage that can have exposure to light, afterwards keep closely pinched. Ventilate early and freely so as to ensure short-jointed stout wood and thick leathery foliage. Avoid a saturated condition of the borders, but keep them moist, and to encourage surface roots mulch about 2 inches thick with lumpy stuff, adding from time to time a few knobs of fresh droppings from the stables, which give off ammonia, and have virtue washed from them each time of watering. These surface dressings induce the Vines to root from the collar, and with active feeders excellent results are secured.

Late Houses.—The Vines in these are making rapid progress, and must be tied out and stopped as soon as they have made sufficient wood to cover the trellis with foliage. The bright weather has had a wonderful effect upon the foliage, which has the healthy blue-green colour so characteristic of active feeders luxuriating in nitrogenised aliment. Take every advantage of sun heat to increase the ventilation early in the day, but close early, which is a means of prolonging the health of the Vines, using fire heat no more than is absolutely necessary. Make a selection of the bunches that are to remain for the crop, big and loose bunches being the worst for finish, and the medium-sized and compact the best for ripening well and keeping.

Newly Planted Vines.—When the planting is recovered from, as will be indicated by their growing freely, ventilate early, as the value of growth is dependant on its solidification, there being no remedy for a soft growth with a large pith; therefore, aim at a sturdy, short-jointed growth, encouraging the laterals in preference to mere elongation of the cane, letting all the wood remain that can be exposed to light; but supernumeraries intended for next year's fruiting should have the laterals pinched at the first leaf, afterwards allowing them to make a few joints of growth and pinching the cane at 8 to 9 feet of growth, taking every possible care of the leaves on the cane, not allowing them to be interfered with in any way by the laterals. Keep the soil moist but not very wet, closing early with plenty of atmospheric moisture.

PLANT HOUSES.

Crotons.—Crotons root freely at this season of the year when kept from the plants that are in active growth. The large heads of plants that have become too tall for various forms of decoration will root as freely without losing their foliage as cuttings of a much smaller size. In topping plants care should be taken not to take the cuttings with very firm wood attached. Large cuttings of this description are a long time rooting, and often lose their lower foliage, but if the wood is moderately firm only they can be rooted without losing a single leaf. Cuttings that it is necessary to grow into plants quickly should be rooted singly in pots according to their size, or if labour is an object place them into the pots in which they will have to be used for furnishing purposes. After insertion keep the cuttings moist, close, and shaded from the sun. They will soon form roots, and should afterwards be grown exposed to full light and sunshine. To fully develop the beautiful foliage of Crotons they must have abundance of heat and moisture, and be exposed to the sun. Shade, or partial shade, for these plants is a great mistake.

Ixoras.—To grow these plants well they must have a high temperature with plenty of moisture whether required for exhibition or in small pots for furnishing purposes. It is to be regretted that they are not grown in larger numbers in small pots for home and room decoration. They are as easily grown as Crotons. Those intended to flower should be pushed on, for the wood must assume a ripened condition if profusely flowered plants with large trusses are expected. Do not stop the shoots, but allow them to extend until they show flower. Cuttings may be rooted singly in 3-inch pots for succession, to be afterwards transferred into 5-inch pots. Those that flower first may be pruned well back and pushed again into growth, and in due time they will flower profusely. A small shift may be given them after they have started into growth, or they may be flowered in the same pots if two or three applications of artificial manure are applied to the surface of the soil.

Cuttings at this period of the year will root freely enough under the same conditions as Crotons.

Dracenas.—Young plants that have been raised from roots and stems may now be placed singly into 3-inch pots in a compost of peat and loam in equal proportions, with one-third leaf mould added, or the same quantity of old Mushroom bed refuse. If practicable, plunge them in bottom heat and supply water carefully until established. Dracenas should be grown quickly in plenty of heat and moisture, but must be shaded from bright sunshine. Large heads may be rooted from plants that have grown tall without losing any of their foliage if taken where the wood is soft and kept close and shaded in the propagating frame. Too much moisture must be avoided, or the tips of the foliage will decay. For decoration *D. Goldiana*, *D. gracilis*, and *D. Lindenii* amongst stove Dracenas are three of the best. In propagating the heads of these it is important that they be taken where the wood is soft. With these the stems must be kept to break if an increase of the stock is required; but with *D. Cooperi* and *D. terminalis*, still two of the best, the stems may be dried and hardened, and then cut into lengths and placed in sandy soil in pans. Plants of *D. rutilans* should be grown moderately cool after they are placed in the pots in which they will finally be used for decoration. Moderately cool treatment insures plants of a sturdy robust nature that will bear well the hardships to which they will be subjected in rooms and halls.

Pavonia Wightii.—With ordinary care this plant seeds freely, and a stock is raised more quickly by this means than by either cuttings or eyes. The latter course must be followed until sufficient stock has been raised to yield seed for maintaining a succession of plants. This is decidedly the best grown upright in 5-inch pots for decoration, and when the specimens become leggy the tops may be re-rooted and the stem thrown out. It is an invaluable plant, for it appears to flower freely throughout the whole year. A few leaves are made, then a batch of flowers, and so on. By sowing seed successively flowering plants in abundance may be had. It appears to flower freely whether grown under shady conditions or fully exposed to the sun. Plants raised from seed sown in February are now well established in 3-inch pots. The seeds should be dried for a week or ten days after it is gathered from the plant, and then sown.

THE BEE-KEEPER.

NOTES ON BEES.

WE learn that the Directors of the proposed International Exhibition which is to be held in Glasgow in 1888 have resolved to devote a part of the building to bees, their produce and appliances, with comestibles, &c., made from honey and wax. Major R. J. Bennett, Honorary Secretary to the Caledonian Society, has been appointed one of the Committee. As that gentleman has had much experience in bee husbandry his appointment is a judicious one, and we have no doubt the Exhibition will be a success, as all desire.

THE WEATHER.

April has been an exceptional month for low temperatures. Until April 21st there were only two nights during the month when the temperature stood above freezing, on one at 35° and on the other at 40°. On all the others it ranged between 21° and 27° and a day temperature of 45°, excepting the 17th and 18th, when it rose from 21° to 64° on both days. It has been without doubt the most protracted season of cold during that month in our experience. Bees have had only three working days this year yet, and vegetation is backward.

WINTERING BEES.

Preserving bees during winter has engaged the attention of naturalists and bee-keepers from time immemorial, although we have long since solved the problem so far as the winters that are past are concerned and those that will follow of the same nature. Still the knowledge needed is how to preserve bees during winters of a more severe and protracted character than we have ever experienced in this country. As is well known, bee-keepers do not agree upon how bees should be wintered. I need not point out here the errors made by many upon this important question. Suffice it to say that many treat bees

quite contrary to their nature, without taking the condition of the bees and the inclement state of the weather into account, but regard it as an axiom that if bees survive the winter well under certain conditions one year they will always do so. Our seasons are varied, and while some winters have passed in our experience with scarcely any frost or snow, others have been both frosty and long-continued with much snow, the greatest enemy bees kept in the open have to contend with. Four degrees below zero is the lowest temperature I have ever experienced, but it was of short duration, lasting only two days every time it occurred, and bees kept in single-cased hives of five-eighths of an inch thick but dry were uninjured, while with a temperature of not less than 28° , but which continued for some weeks and with much snow, the bees suffered greatly.

During the present year I had two "nuclei," which in September could only cover a circle of about 6 inches of brood; yet, notwithstanding the paucity of bees, they were healthy during January and February, experiencing a temperature of 70° , but in March, with a temperature of 10° and snow, I observed the bees of one of these "nuclei" leaving the hive in a distressed state. I took it indoors, but the temperature of the room must have been very low as water froze in it, and the bees appeared dead. I placed it in a warmer compartment and the bees were mostly resuscitated; kept it in the house at a temperature at about 56° for three weeks, and they are now progressing, breeding as rapid as circumstances will allow. The other one has stood outside, but has few bees and not breeding, although it was not the stronger of the two, which, had it been housed, would have been a thriving although a weak hive.

I have never experienced any difficulty in preserving bees outside until the end of February however severe the weather has been, but from the beginning of March and often far in May the loss is sometimes great, especially with weak hives and those that are scarce of food. At all times the well provisioned hive, both in pollen and honey, loses fewest, bees remaining quiet, when hungry bees are abroad and losing themselves. Especially so has it been the case this year. I have often heard of pollen-bound hives, but I never experienced anything but good results from hives having, apparently, an extra supply of pollen. Until the temperature reaches nearly 60° well provisioned hives remain comparatively quiet, and hives with not more than half the bees will often be flying when these strong hives are perfectly still to all appearance outside. When bees are crowded into little space it tends greatly to keep them on the wing when they should not be. On the other hand, a fair number of bees having twice as much unoccupied space as there is occupied will be perfectly quiet and in a normal state both as regards breeding and health.

The great principle to observe is to have bees dry and without any draught playing upon them, so as to reduce the natural temperature of the hive. If bees cannot raise the temperature to 60° during cold weather they are unable to move about and feed, consequently they often suffer and die. I have often seen bees exposed in a dry atmosphere outside to 4° of frost, yet, owing to having honey in their stomachs, resuscitated and flew to their hives. On the other hand, when they come into contact with a damp surface, even at a temperature between 35° and 40° , they die; how important, then, is it that hives should be kept free from damp.

Before I adopted the ventilating floor as I use it now I frequently gave the bees large entrances, but since I

adopted the ventilating floor I find it had been a mistake. When a hive is properly made, and fitted with a ventilating floor, there is no necessity for the entrance to the strongest hive being more than 1 inch wide. Such a hive is airy but not draughty, and is easily heated and keeps the bees quiet with little consumption of food, consequently they are less liable to be injured through stress of weather than those not so treated. Since I advised the use of perforated floors some have condemned them, but give no reason for so doing. Many, however, have given them a trial and report greatly in their favour.—A LANARKSHIRE BEE-KEEPER.



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

LATE INQUIRIES.—It is necessary to again remind correspondents that letters arriving on WEDNESDAY MORNING cannot be answered in the "next issue," which is then far advanced for press.

Daffodils (R. H. F.).—The work by Mr. F. W. Burbidge and Mr. J. G. Baker is the best you could have on the subject. You can procure catalogues from Messrs. Barr & Son, 12, King Street, Covent Garden, London, and Mr. T. S. Ware, Hale Farm Nurseries, Tottenham.

Seedling Primula (S. B.).—We are obliged by the plants you have sent, the parentage of which we have noted, and your "child" will find many associates in our "nursery." It appears delicate, yet promising, and will not be neglected. The green-edged Auricula should also be grown with the object of developing its properties.

Scale on Gardenias (Ferndale).—Fir tree oil, nicotine soap, Gishurst compound, Lemon oil, and Thanatos will destroy scale when the insecticides are prepared and applied according to the instructions of the manufacturers. Some persons cleanse their plants with the petroleum and soft-soap solution, the preparation of which has been so many times described. Methylated spirits will destroy scale and not injure the plants, applying to the stems with a soft brush.

Weevils on Ferns (T. F.).—The enemy that is attacking your Ferns so persistently is the destructive weevil *Otiorhynchus sulcatus*. As they are most active at night you may secure many by taking each plant carefully and briskly shaking it over a white sheet, this showing where the weevils fall, and their escape can then be prevented. By perseverance in that plan the number of weevils may soon be materially reduced. Another method of attack is syringing the plants well with a solution of hellebore, prepared by pouring a little boiling water on 2 ozs. of white hellebore powder, which can be obtained from a chemist, beating it into a soft paste, then well stirring into a gallon of water. When convenient the plants ought to have all the old soil removed that is practicable, and the house should be thoroughly cleansed in every part.

Shading Conservatories (E. G.).—Where light blinds can be conveniently fixed under a roof to be drawn down on hot days and drawn up in dull weather, we consider the plan better than a permanent shading on the glass. Ferns, Palms, and a number of ornamental-foliaged plants are not injured by a light permanent shade, but where flowers are grown many of them become drawn under clouded glass during a period of dull weather. Summer cloud is found satisfactory by many cultivators, and can be washed off in the autumn with a strong solution of soda. Many conservatories are so arranged and planted with climbers for covering the roofs that inside blinds cannot be very well used, but where they can be properly fixed so as to work smoothly they will give satisfaction. Blinds with narrow light blue stripes are employed in some conservatories, their appearance being preferred to plain white material.

Warts on Vine Leaves (J. L. A.).—The small excrescences on the leaf you have sent are not caused by insects, but by slight exudations of sap. When the warts are so numerous as to give the leaves an encrusted appearance respiration is impaired and healthy growth arrested. The leaf before us is by no means seriously ruptured, and if there are others no worse on the Vine we do not apprehend it will be materially injured. The affec-

tion often follows a great outrush of air by throwing the ventilators open widely after a house has been closed too long, and the air becomes too warm and moist, the transpiration or evaporation from the leaves being then too sudden and excessive. Admit air early by the top ventilators, increasing it gradually as the heat of the house increases, but never in such a volume at once as to cause a sudden fall in temperature. We are glad to hear our advice has resulted in the extirpation of mealy bug from your vine.

Roots on Vine Rods (No Name).—You neither send your name nor address; and, as you may see from the notice above, matter intended for publication should be written on one side of the paper only. Undoubtedly a low and very damp house will influence the production of roots on the stems and Vines. Free root action in a good border should be encouraged, and a buoyant atmosphere maintained in the viney; then the roots above ground may be expected to diminish without the Vines sustaining any check by their absence.

Mulching Roses—Tomatoes (Kittie).—If the soil is of a light nature and liable to "dry out" in summer we should not fork in the long litter, as it would make the ground still lighter, and the surface covering would be of service in preventing evaporation; but if the ground is very heavy it would be improved by the manure being pointed in, provided the roots of the plants are not disturbed, and even then a covering of short manure spread on the soil on the approach of hot weather would do good; short manure would be better than long also for mulching light soil. We had a wall 10 feet high profitably covered with Tomatoes last year, the plants being 2 feet apart, each confined to one stem, like a Vine, and the stems were covered with fruit; in fact, they contained nothing but fruit and large leaves, all the axillary growths being rubbed out. When fruit does not set, however, from the main stem, axillary growths should be left and topped close to each cluster of flowers as soon as formed.

Pale Marechal Niel Roses (J.).—It is the opinion of some growers that there are two forms of this Rose, and we have seen two plants in the same garden, one of which afforded rather small and pale, the other large and rich golden blooms; but do not for a moment suggest that yours is an inferior form. Mr. William Paul is too good a rosarian to be deceived, and the Marechal Niels exhibited by him are usually remarkable for their brilliancy. We suspect there is something wanting in the soil in your district that is necessary for imparting richness of colour to the blooms, and the example you cite of a plant budded from a Rose of deep colour producing pale blooms confirms that view, though the stock may have had some influence in the change. The liquid manure you have given, consisting largely of soot water, would have a tendency to deepen the colour rather than the reverse. Some authorities are of opinion that a trace of iron in the soil intensifies the colour of flowers, hence iron filings have been employed for changing the colour of Hydrangeas. An experiment appears to be worth trying of sprinkling iron filings on the soil over the roots of one of your plants, or giving water impregnated with iron. We have no experience of any such trial, but know that Roses colour well in soil containing iron; whether the blooms would be equally rich without it we do not know.

Forcing Pit (Cambridge).—We think your proposed arrangement will answer very well, the roof of course being made rigid without impeding the action of the ventilators. With those made to open to their full width or thereabouts side ventilation will seldom if ever be needed; still we should have sliding shutters, or a 9-inch lid on hinges below the stage, to be used if required; on the "bed" side we fail to see the necessity for ventilators, nor is glass by any means a necessity at the sides above either the bed or the stage. We should prefer the north end to be bricked up, if the wall were not objectionable as seen from the outside; inside it might be covered and made attractive. The two 4-inch pipes enclosed in the chamber would be more than sufficient for affording bottom heat, and the one 3-inch round the house perhaps scarcely sufficient for top heat in severe weather, therefore we should have a lid or sliding door in the side of the chamber next the path, and should then expect sufficient heat both in the bed and the house. But it is not apparent how the top heat pipes can be taken all round the house without crossing the path near the entrance at an inconvenient height above ground, though you can perhaps see your way to carry out that arrangement. We may say, however, it would not be wise to dip the flow down into the path and take it up on the opposite side. If the position of the existing boiler is such as to permit the connection being made under the door, the flow pipe could be taken up one side, or cross the end of the bed or stage, and so conducted right round, returning down the other side to the boiler. With the piping properly arranged the boiler ought to heat both houses well. It may be advisable to consider the possibility of wanting heat in the small stove when it is not required in the larger house, which is perhaps a conservatory, and make provision accordingly. The plunging bed should rest on slates; on the stage side corrugated zinc, surfaced with crushed shells or other suitable material, would be better than open latticework.

Names of Fruits.—(W. P.).—Gloucestershire Costard.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (L. T.).—Owing to the flowers being packed in dry moss they were somewhat shrivelled as to be scarcely recognisable, but we should take it to be *Dendrobium thyrsiflorum* (W. G. W., Reading).—A. Resembles a small flower of *Oncidium divaricatum*; B. *Miltonia cuneata*. While the Ferns are small they will not injure the Orchids in the slightest, and you need not trouble to remove them until potting time. Many persons plant small Ferns with their Orchids, especially such as *Pleione* which flower without leaves. (G. Farrant).—The plant is not an Orchid, but a member of the Broomrape family (*Orobanchaceae*) and is known as Toothwort popularly, botanically as *Lathraea squamaria*. It is found generally in Europe and as far as the Himalayas. (E. B.).—Though being grown under glass the spray does not represent the normal character of the plant, and we can only suggest the possibility of its being *Cryptomeria elegans nana*.

COVENT GARDEN MARKET.—MAY 4TH.

BUSINESS improving, and with good supplies all classes of goods are readily cleared. Some good samples of new Grapes to hand.

FRUIT.

	s. d.	s. d.		s. d.	s. d.		
Apples, $\frac{1}{2}$ sieve	2	0 to 5	0	Oranges, per 100	6 0 to 12	0	
" Nova Scotia and	8	0	12	0	Peaches, dozen	0 0	0
" Canada, barrel	10	0	13	0	Pears, dozen	1 0	2 0
Cherries, $\frac{1}{2}$ sieve	0	0	0	0	Pine Apples, English,		
Cobs, 100 lbs.	50	0	55	0	per lb.	1 6	2 0
Figs, dozen	0	0	0	0	Plums, $\frac{1}{2}$ sieve	0 0	0 0
Grapes, per lb.	4	0	8	0	St. Michael Pine, each	2 0	5 0
Lemons, case	10	0	15	0	Strawberries, per lb. ..	3 0	6 0
Melon, each	0	0	0	0			

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.	
Artichokes, dozen	1	0	2	0	Lettuce, dozen	1	0	to	1	6
Asparagus, bundle	8	0	12	0	Musbrooms, punnet ..	0	6	1	0	
Beans, Kidney, per lb. ..	1	3	0	0	Mustard and Cress, punt.	0	2	0	6	
Beet, Red, dozen	1	0	2	0	Onions, bunch	0	3	0	6	
Broccoll, buundle	0	0	0	0	Parsley, dozen bunches	2	0	3	0	
Brussels Sprouts, $\frac{1}{2}$ sieve	0	0	0	0	Parsnips, dozen	1	0	2	0	
Cabbage, dozen	1	6	0	0	Potatoes, per cwt.	4	0	5	0	
Capiscums, per 100	1	6	2	0	" Kidney, per cwt. ..	4	0	0	0	
Carrots, buuch	0	4	0	0	Rhubarb, bundle	0	2	0	0	
Cauliflowers, dozen	3	0	4	0	Salsafy, bundle	1	0	1	6	
Celery, bundle	1	6	2	0	Scorzoner, bundle ..	1	6	0	0	
Coleworts, doz. bunches	2	0	4	0	Soakale, basket	1	6	0	0	
Cucumbers, each	0	4	0	6	Shallots, per lb.	0	5	0	0	
Endive, dozen	1	0	2	0	Spinacb, bushel	3	0	4	0	
Herbs, bunch	0	2	0	0	Tomatoes, per lb.	1	0	2	6	
Leeks, bunch	0	3	0	4	Turnips, bunch	0	4	0	0	

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.
Aralia Sieboldi, dozen	9	0	18	0	Fuchsia, dozen	9	0	12	0
Arbutus vitæ (golden) dozen	6	0	9	0	Genista, dozen	8	0	12	0
" (common), dozen	6	0	12	0	Hydrangea, do eu	10	0	12	0
Azalea, dozen	18	0	36	0	Lilies Valley, dozen	9	0	18	0
Begonias, dozen	4	0	9	0	Marguerite Daisy, dozen	6	0	12	0
Cineraria, dozen	4	0	8	0	Mignonette, dozen	6	0	9	0
Cyclamen, dozen	12	0	24	0	Myrtles, dozen	6	0	12	0
Dracena terminalis, doz.	30	0	60	0	Palms, in var., each	2	6	21	0
" viridis, dozen	12	0	24	0	Pelargoniums, dozen	9	0	18	0
Erica, various, dozen	18	0	42	0	" ecarlet, dozen	4	0	9	0
Euonymus, in var., dozen	6	0	18	0	Primula sinensis, dozen	4	0	6	0
Evergreens, in var., dozen	6	0	24	0	Solanums, dozen	9	0	12	0
Ferns, in variety, dozen	4	0	18	0	Spirea, dozen	9	0	12	0
Ficus elastica, each	1	6	7	0	Tulips, per dozen pots	6	0	9	0
Foliage Plants, var., each	2	0	10	0					

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.	
Abutilons, 12 bunches ..	2	0 to 4	0	Lily of Valley, 12 sprays	0 9 to 1 0	
Arum Lilies, 12 blooms ..	3	0	6	0	Marguerites, 12 bunches	2 0 6
Azalea, 12 sprays ..	0	6	1	0	Mignonette, 12 bunches	4 0 6
Bouvardias, bunch ..	0	6	1	0	Narcissus, 12 bunches ..	2 0 6
Camellias, blooms ..	1	6	4	0	" White, English, bch.	0 0 0
Carnations, 12 blooms ..	1	0	3	0	Pelargoniums, 12 trusses	0 9 1
" 12 bunches ..	0	0	0	0	" scarlet, 12 trusses	0 4 0
Chrysanthemums, 12					Parm Violets (French)	2 6 3
bunches	0	0	0	0	Poinsettia, 12 blooms ..	0 0 0
Cornflower, 12 bunches ..	0	0	0	0	Primroses, 12 bunches ..	0 6 0
Cyclamen, 12 blooms ..	0	4	0	9	" white 12 bunches ..	0 9 1
Daffodils, var., doz. bchs	2	0	6	0	Primula (single), bunch..	0 0 0
Encubias, dozen ..	4	0	6	0	" (double), bunch ..	0 9 1
Gardenias, 12 blooms ..	1	6	3	0	Roses, 12 bunches ..	0 0 0
Hyacinths, Roman, 12					" (Indoor), dozen ..	1 0 2
sprays ..	0	0	0	0	" Tea, dozen ..	1 6 3
" Dutch, per					" red dozen ..	2 0 4
box ..	1	6	5	0	Stephanotis, 12 sprays ..	4 0 6
Lapageria, white, 12 blms.	0	0	0	0	Tropaeolum, 12 bunches	1 6 2
Lilium longiflorum, 12					Tuberose, 12 blooms ..	1 0 2
blooms ..	4	0	6	0	Tulips, dozen blooms ..	0 6 1
Lilac (white), French,					Violets, 12 bunches..	0 4 0
bunch ..	4	0	7	0	" Czar, French, bunch	0 0 0



PIGS.

SINCE corn has become so cheap in this country much more of it has been used for pig-breeding by farmers, for the simple reason that pigs may still be bred, reared, and fattened profitably—so profitably, that within certain limits there is nothing which now answers better—few things so well among farm produce. Repeatedly has it been our experience that a demand upon open markets for any article that is tolerably easy of production usually gives rise to over-production, but this is hardly likely to prove the case with pork. The demand for it certainly fluctuates somewhat, but it is unquestionably constant and steady.

The important fact should not be forgotten that pork is a marketable commodity, either in the form of the living animal, or as pork, bacon, hams, and lard. Although we have an annual importation of bacon and hams worth from eight to ten million pounds, yet prime Wiltshire bacon, York hams, and Bath chaps continue to command the highest market prices. This fact is most important to farmers, for it is simple nonsense to suppose that curing bacon and hams cannot be done as well in other parts of the country. That Wilts bacon and York hams should be so famous as to command a special market value is just owing to the perseverance, skill, and enterprise of certain persons in those counties. We may say without fear of being accused of egotism that we have had hams, chaps, and flitches cured at the home farm that were equal, and in the opinion of many superior, to any that could be purchased.

What we want to see upon farms generally is not only a greater number of pigs, but a systematic arrangement for the manufacture of cured pork at every farm. Some twenty or thirty years ago it was customary for a certain number of fat hogs to be killed and the pork cured for home use in the form of pickled pork, bacon, and hams. Pickled pork when well managed is really a tempting and palatable article of diet. It is neither white nor yellow in colour, soft nor flabby, but is tolerably firm and pink in colour. Some practical knowledge of the process of pickling is of course necessary to enable one to be successful; it is, however, so simple that with the exercise of due care and painstaking there is little risk of failure. That is the point, painstaking, for without it we can hardly expect to be successful. Often do we see what the dealers term prime pickled pork exhibited for sale which we know at a glance to be anything but prime, so too there is much of the imported bacon that is very inferior.

It may be said that the rearing and fattening of pigs for market falls more within the scope of a farmer's business than killing and curing them does. If we were to concede this point we must still insist upon better practice in pig management generally. To begin with, a farmer should always breed enough pigs upon the farm for his requirements. Although precise calculations of results beforehand are unwise because they are unsafe, yet calculations there must be, and we have only to allow a reasonable margin for accidents and failures to render them reliable. For example, a sow gives two farrows of pigs yearly, one in spring, the other in autumn. The best age at which to allow a young sow to begin breeding is twenty months, and if a sow rears two dozen pigs yearly that would be very satisfactory. At one of our farms four young sows had forty pigs in March; the farrows of older sows often range from a dozen to twenty pigs, so that an average of two dozen pigs to each sow is a fair one.

But it very seldom answers to say so many sows, so many pigs, for piggy's career is beset with much risk at the outset. The sow may lie upon and crush or smother them, or if, as sometimes happens, the side teeth of the pigs are long they scratch the teats as they suck, the pain renders the sow savage, she turns upon the pigs, bites them, and if she makes them bleed the taste of the blood is quite sure to make her eat them. The remedy is to take away the pigs and draw the long teeth with a pair of pincers, but this must be done at once, and before the teats have been so much hurt as to cause soreness and inflammation. There will then be no difficulty to induce the sow to allow the pigs to suck and to be gentle with them. The sow ought never to farrow in a small sty, but

it should have a large one with a projecting shelf or rail all round the sides about a foot wide and a foot above the floor. There will then be no risk of the pigs being crushed beneath her. Floors of asphalt or Portland cement sloping to a gutter are best, and there should only be enough straw for the sow's bed. It is undoubtedly owing to the filthy condition in which piggeries are suffered to remain week after week that there is so much disease among pigs, yet by the exercise of ordinary care and cleanliness all risk of loss from swine fever might be avoided.

WORK ON THE HOME FARM.

Free growth is still prevented by frosty nights and cold winds; growth is, however, perceptible even on the most backward pasture, and the roller has been kept going upon all grass reserved for hay. This work has been done much later than usual, both because we were so busy upon the arable land, and because the pasture was so dry and hard that rolling would have done no good. The slow growth of grass tries the resources of flock masters severely, and for the next week or two it will be critical work to keep the lambs going satisfactorily. We have been singularly fortunate in having an abundance of green food, and our store of roots holds out so well that we shall have plenty both for the wet and dry flocks. To the somewhat numerous applicants for the hire of grazing land for sheep we have been very outspoken about the bad practice of sowing green crops for spring upon land out of condition. It is either from carelessness, ignorance, or prejudice that this is done. Any land will do for a piece of Rye is the common idea, but we cannot agree that any farm crop is of so little importance as to be unworthy of careful cultivation. Since writing our last note we have had some nice showers of rain, heavy enough to get down to the roots of growing crops, and therefore well calculated to do much good. Mangold seed will now germinate quickly; chemical manure, too, is dissolved; the soil is charged with food ready to be absorbed by plant growth, and with a change to warmer weather growth of more than usual rapidity may be expected. As the sheep pass onwards in folds over Rye the ploughs should follow closely, especially if any of the land is required for early Turnips. We began our autumn folding upon early Turnips last year to the advantage both of the sheep and the land. This was on a heavy land farm where sheep have not answered very well in midwinter, and therefore we begin folding as early as we can in order to do as much of it as possible before very cold weather sets in. We have no faith in the common assertion that sheep cannot be wintered upon heavy land, and are having much of this farm drained in view of a much more extensive use of sheep upon it. While avoiding extremes we certainly do like to go as far as we can with animals or crops out of which even a little money is to be made.

LETTER BOX.

Steamed Bone Flour (W. J.).—The sample of bone flour which you sent us is not steamed bone flour, nor can we recommend its use as a substitute, because it is so badly ground that its action must be slow. There is still so much ignorance of what steamed bone flour really is, even among dealers in artificial manures, that we may explain that the bones have been subjected to steam at high pressure to extract the glue or gelatine. The residue contains about 60 per cent. of phosphates, and from 1 to 2 per cent. of ammonia. It is friable, and can be crushed with the hand. The grinding is therefore such an easy matter that it is reduced to an impalpable powder, and it is the quick action of this powder or flour which renders it so valuable for plant food.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.				IN THE DAY.					
	Barometer at 32° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		Rain.
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1897.										
April.										
Sunday	24	Inches.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	In.
Monday	25	29.308	45.8	43.5	S.E.	47.7	55.7	40.4	99.8	36.4
Tuesday	26	29.726	49.7	44.2	S.E.	47.2	50.8	40.3	78.2	35.3
Wednesday	27	29.951	48.6	42.8	S.W.	45.7	54.8	33.4	101.2	26.8
Thursday	28	29.893	44.8	40.0	W.	45.2	51.6	35.8	102.2	30.2
Friday	29	30.028	44.8	41.1	W.	44.4	56.7	33.1	94.6	27.4
Saturday	30	29.838	42.7	40.5	N.	44.8	51.2	37.0	84.6	37.6
		30.094	45.4	41.6	N.E.	44.8	54.9	37.8	93.3	30.3
		29.841	45.0	42.0		45.7	53.7	36.9	94.1	32.0
										0.912

REMARKS.

24th.—Cloudy, with frequent storms of rain from 1 A.M. to 10.30 A.M.; fine and bright till 3.30 P.M.; then a heavy storm of rain and hail, and a showery evening.
 25th.—Bright early; dull showery day; fair evening.
 26th.—Bright morning; cloudy afternoon; wet evening; clear night.
 27th.—Brilliant early; showers at 0.30 P.M., with soft hail at 0.40 P.M.; wet afternoon, with occasional hail.
 28th.—Fine, but not very bright; wet evening and night.
 29th.—Cloudy morning; fair afternoon.
 30th.—Fine, with little sunshine.
 A week with a considerable fall of rain, but much fair weather and some sunshine, though rather cold and backward. Temperature about 5° below that of the preceding week, and nearly the same amount below the average.—G. J. SYMONS.



COMING EVENTS

12	TH	
13	F	
14	S	
15	SUN	ROGATION SUNDAY.
16	M	
17	TU	
18	W	Royal Botanic Society's First Summer Show.

THOUGHTS ON POTATO DEGENERATION.

WHEN last jotting down impressions on matters of interest in the Journal it was stated I should not again encroach on space for a few weeks, and I think I have kept my word. A longer silence would have been agreeable to me, as possibly to some others, but not to all, for week by week come reminders of my inactivity; indeed, one impulsive friend accuses me of laziness, and another seems concerned at my "drying up," which he is good enough to think would be "a pity." I think so too, but on this matter I am prejudiced, and the opinions of such persons have little weight. On the next subject, which is an important one, I am not prejudiced—namely, the alleged degeneration of Potatoes, and am free to give expression to a few thoughts thereon, and it will absorb the whole of them on this occasion.

Mr. Iggulden and Mr. Murphy are the chief disputants in the matter. It may be admitted they are both good "Potato men," but I am unable, in all points, to agree with either of them. Though in my opinion Mr. Murphy attaches too much importance to the "greening" process, he is perfectly right in his allegation that many varieties of Potatoes have lost their pristine vigour, and no longer grow so strongly nor yield so bountifully as in bygone days. If that is not degeneration I am at a loss to know what is. Mr. Murphy has clearly stated that the Scotch Champion is now among the weaklings in Ireland, while only a few years ago it was the strongest of all the tribe—once the sheet anchor of the farmers and peasants, now quite unreliable in the sister isle. That is a fact that was recorded with sorrow, and simply because its existence could not be ignored. Moreover, Mr. Murphy stated one valid reason for the deterioration of the "Champion"—its proneness to early sprouting, and the inevitable weakening of the stock by the removal of the first strong growths, and relying on the later and the weaker for perpetuation. Mr. Iggulden, while denying degeneration, admits it, and, what is more, suggests a very simple method of prevention—namely, leaving the tubers in the ground till wanted for planting—a very good hint; but it appears Mr. Murphy cannot adopt it because he follows with Wheat. Cannot he bury his seed Potatoes somewhere else? I thought there was plenty of room in Ireland.

Further, Mr. Iggulden, to whom we are indebted for much sound advice from time to time, sprinkled with a few illogical expressions, perhaps to incite controversy, besides his tacit admission referred to, states in positive terms that Potatoes degenerate, for he says, "Weaken the sets by premature sprouting, and degeneration, for

one season at least, is the almost certain consequence." Exactly; and if they are weakened in the same way for two, three, or more seasons does not the degeneration become the more marked? We may admit faults in management, but that is only another way of admitting the deterioration of varieties as the expression of those faults. Faults in management can be rectified, and every effort should be made to that end. We might then expect better results in other crops besides Potatoes.

The most striking instance that occurs to me on the degeneration of Potatoes is the case of the once popular and profitable variety, the Fluke, and that was not caused by premature sprouting, for it is one of the most tardy to move, and I think it possible that its lateness in that respect mainly proved its ruin, and if that is so we have evidence of the same effects being produced from totally different causes. A first-rate Potato grower, as good at least as anyone I know, had a special market for Flukes, and for a few years made more money by their culture than from any other variety. He selected his seed tubers with the greatest care, stored them well, worked his land well—indeed improved it considerably, so much, indeed, that he could and did pay 20 per cent. more rent than his neighbours around him; yet, notwithstanding all his efforts, his much-prized Flukes degenerated till they no longer ceased to be profitable. He procured fresh seed, and that effected an improvement for a year, not "at least" according to Mr. Iggulden's degeneration limit, but "at most." By the introduction of fresh seed he "kept his market" for a time, but eventually the seed degenerated and the cultivation of the precious Flukes had reluctantly to be abandoned. The grower was anxious to oblige his customers, but was bound to pay his rent. There was no exhaustion by removing early growths, no want of good tillage nor of cultural attention; other sorts produced excellent crops, but the Fluke collapsed.

There has been a good deal of skimming over the surface on the subject of Potato degeneration, and at the risk of being tedious I will venture on a deeper dive, and if I fish up a few, so far as I know, new notions, an opportunity will be afforded for someone to point out that they are as "old as the hills."

Believers in the degeneration theory have often been confronted with the circumstance of the Early Ashleaf varieties being as good as they were a generation ago, as if that settled the matter against the late sorts failing. Mr. Iggulden has once more put the Ashleaf in the box as his chief witness against the degeneration of the Champion, Fluke, or any other late variety. I think it is time this witness was, so to say, cross-examined, and though I may fail in the effort, that shall not deter me from the endeavour of turning the most formidable evidence our Potato-learned friend can advance as evidence against himself.

Why does the old Early Ashleaf Potato retain its normal vigour? "Because its first growths are preserved," says Mr. Iggulden. But does he suppose they have always been preserved, and by everybody, with the same care that the best cultivators preserve them now? I know quite well they have not, also that numbers of persons do not exercise any such care even at the present day. Yet the old favourite exists. But if the removal of the first growths is the one great cause of the breakdown of varieties, the retention of the whole resources in the tubers, no early growths being rubbed off, should ensure prolonged vigour. I am in a position to say that selected

tubers of the Fluke have not been deprived of a speck of growth for seven years, yet the vigour of the plants declined in soil in which "Myatt's" flourished, and the stock of these is yet strong, while the Flukes became worthless. Depriving seed tubers of their first growths I readily admit is, and must be, weakening, and ought to be abandoned, but that the Early Ashleaf varieties owe their inherent vigour solely to the retention of those growths, and that late sorts have lost their stamina entirely through destroying them, is very respectfully, yet not less emphatically, denied. On this point the evidence of the Fluke is conclusive. It is the latest grower of all, yet has dwindled away almost more completely than any, to the regret of those who prized it beyond all late sorts.

The comparative immunity of the Ashleaf varieties from deterioration is traceable to something very different from the cause assigned and disposed of—something as fundamental as that is artificial. The average summer in Great Britain and Ireland is ample for the complete maturation of our first earlies, but too short for the late sorts. The old Ashleaf proves this by remaining strong from generation to generation, while the late sorts decline and one by one drop out of cultivation. They fail more quickly in wet districts than in dry localities; under faulty preparation and culture than by superior management; in the crowded lazy beds of Ireland, the Highlands of Scotland, and anywhere else, than by the wider planting in the more fertile soil of the carse of Scotland and those plains of England where the greatest bulk of the best produce is raised for supplying the great centres of population with food.

Plant for plant the dwarf first earlies have more space for the full and free development of their foliage under the direct influence of light than have the stronger and later sorts; hence the former assimilate and secrete the food gathered from the earth and the air under the bright sun of July and August, better than it is possible for the late kinds to do during the dull drizzling days of late September and October, with the plants' main leaves that ought to do so much for perfecting the tubers spoiled by overcrowding, the later, weaker, and essentially imperfect having to do the best they can. That is the great cause of the deterioration of very late-growing Potatoes, and the Early Ashleafs prove it by their immunity instead of proving the reverse.

The matter may perhaps be made plainer by a parallel. Late, much-crowded growths of Vines and fruit trees are proverbially unfruitful because unripe. The foliage not having developed has proved exhausting. Good foliage is sustaining by digesting and storing up nutriment in the stems. It is exactly the same with Potatoes, and cannot be otherwise. "Train the laterals of Vines thinly, and permit no superfluous growths to obstruct the light from the first main leaves, nor check their free development," that is, in substance, the sound teaching of Mr. Iggulden and other competent men. Early Ashleaf Potatoes are, as a rule, grown on the same principle, and have the requisite light and heat for their maturation; strong-growing very late sorts that need more light and more heat have less, hence their steady but certain deterioration. They are in the same position as Vines that are grown on the thicket system and with their wood unripened year after year, hence both Vines and Potatoes fail.

The question now arises, Is there no means of arresting their collapse? Certainly there is, but it cannot in all districts be entirely prevented. It may be to a great extent in salubrious Somerset, where gardening is so

easy that crops grow almost without digging, at least—I beg pardon—trenching. There, and everywhere, careful selection and storing of seed: land well worked, and containing an adequate amount of potash, lime, and phosphates, with nitrogen in the form of nitric acid or ammonia for inciting quick and strong root action for abstracting the minerals; thin planting for ensuring the full and free development of the main leaves, and their retention till maturation—those are the desiderata for producing the best plants and maintaining in the best manner the vigour of those varieties of Potatoes that are mainly relied on for food during eight months of the year; but in the meantime efforts must continue in raising new, vigorous, productive varieties of good quality from seed, for sooner or later existing late-growing sorts will fail, for the fact has to be admitted that the majority of Potato growers will continue on the old lines, not one out of ten of them being Igguldens or Murphys. I wish they were.

Mr. Iggulden has changed his mind on the benefits resulting from a change of seed; perhaps he will change it again some day. In some soils change of seed is neutral, in others beneficial, in others, again, detrimental. I am certain that evidence in support of all these propositions could be adduced by cultivators. All I can say now on this debatable question is this—As a rule it is better to take Potatoes from a strong soil to a lighter than from a light soil to a stronger, and in my opinion seed Potatoes grown in a poor sandy soil are the least productive of all, wherever they may be planted.

The great importance of this subject, bearing as it does on a staple article of food, and the wide interest attaching thereto, is the apology for this long string of evening cogitations by—A THINKER.

WARM WATER.

MANY years ago the young men employed in the gardens in the neighbourhood of a provincial town founded a mutual improvement society, which as an association met at stated intervals in that town for the discussion of questions connected with their calling. The cut flower mania was not then started, at least not to an appreciable extent; nevertheless the best methods of arranging cut flowers and other matters connected therewith came up for discussion. It was the general feeling of the members on that occasion that cold water was the best medium for preserving the flowers in glasses; but one young man, who is now not unknown as a good gardener, expressed his conviction that for flowers grown in warm houses warm water should be used. It does not appear to be a matter of much importance, but it will be found that warm water is better than cold, especially during the winter and spring months, when so many of the flowers used for vase-filling are grown under glass. I am not prepared to state the reason why this should be so, but most likely it is because warm water is more readily absorbed, and the flowers on that account become more rapidly accustomed to their changed conditions. This is seen in a very marked degree when the flowers have been cut for some time—say after a long journey—when warm water freshens the flowers much more rapidly than cold water does.

But if of value for flowers when cut the employment of warm water for refreshing plants in pots is of much greater value, and particularly in the case of plants grown in apartments in dwelling houses. In cold weather when fires and hot-water pipes keep the atmosphere of rooms not only very warm but also very dry, it is an almost impossible matter to keep the soil in pots from becoming more or less dried. In any such extreme cases I do not hesitate to water with decidedly hot water, applying just a little, which soaks into the dry soil at once, then a little more, until the whole soil is soaked. Anyone who has had experience with such plants as are here referred to must know how hopeless it is to get cold water to do its duty unless the plant is removed and pot and soil immersed in the water, and then it takes a long time before the air in the soil gives place to the water. By using hot water, on the other hand, the soil is moistened in less time than it has taken me to write about it.

But warm water has the further advantage in the case of plants the roots of which are not in a too dry soil, as it is of greater benefit to the plant than cold water. Even with such hardy plants as *Auriculas* I like to take water from tanks in hothouses. Everyone must be cognisant of the wonderful effect a warm shower of rain has on vegetation in the open, and it is not assuming too much to suppose that warm water has a like beneficial effect on plants grown in pots. Mention may be made of other cases of a somewhat exceptional nature when warm water proves of much importance as a ready moistener of dry material. It is so in the case of many *Orchids* which are allowed to become dry at the root during their season of rest, and dried peat is much more difficult to moisten than loam. The utility of warm water for this purpose can very easily be tested by trying plants of say *Dendrobiums*, *Odontoglossum grande*, *Vandas*, *Aerides*, or *Saccolabiums*, all of which have been rested dry and cool; attempt to moisten one set with cold water and another with warm, and the difference will readily be seen; but a step further may be taken on this point, for *Orchids* should always have water given at a higher temperature than that of the house in which they are grown.

Where fertilisers are largely used for plants in pots and for fruit tree borders, as in our own case, the employment of warm water as a matter of everyday routine helps largely in making these immediately and more certainly effective. There is no matter of doubt that hot water is a better solvent of alkalis than cold water, while the roots themselves are acted and reacted on very much more rapidly and energetically when warm water is used. It may be presumed that by-and-by the value of such a simple change in such a common article of gardening will be appreciated, but at present there is no doubt that it is not so. Why, even in such apparently transparent matters as cleaning pots, washing wood-work and glass, and even sponging the foliage of plants, there are plenty who turn naturally to the cold water tank for supplies, and as for the matters of which this article treats it is doubtful if warm water is ever given a thought.—B.

REMARKS ON SETTING GRAPES.

Most cultivators breathe more freely, or in other words feel a critical time is past when the Grapes under their charge are well set. Unless a berry contains a full complement of seeds it rarely attains a full size, and the aim should be to secure either three or four in every berry. Half the berries of the free-setting *Black Hamburgs* that are grown under glass in this country do not contain more than two seeds, this in many cases being the result of not attending to them at flowering time. When the Vines are full of vigour I have frequently observed little globules of moisture on the stigmas, and unless the air be warm and dry this is not dissipated sufficiently early for the pollen to do its work properly. It is not a very tedious or laborious task to pass the hand gently over every bunch of *Black Hamburg* in a house—say between 11 and 12 A.M., this operation both dislodging the moisture and effectually distributing the pollen. Very few think it necessary to fertilise *Black Hamburg*, but let me advise those who are not satisfied with the size of their berries to give the plan a trial.

Buckland Sweetwater, again, is not nearly so free in setting as it has the credit of being. To have it really fine, and it is a handsome Grape when well grown, I recommend every care being taken to fertilise it each morning till such times as the whole of the bunch has flowered. Foster's Seedling is perhaps one of the freest setters we have, but even this, as well as the others just named, may well be assisted. Where Vines flower in dull weather I strongly recommend a little extra fire heat to raise the day temperature to near 75°, this admitting of a little top ventilation about 10 A.M. At midday the pollen will have dried, and if the rods are smartly tapped it will be distributed in a cloud. This style of fertilising is usually deemed all that is necessary, sufficient pollen being thereby lodged on the stigmas. However, it will not effect a really good set if the globules I have alluded to are observable. Not only does a rise in the temperature assist setting, but it also "runs out" the bunches, and that, too, without unduly weakening them. Most close observers will have noticed that early forced Grapes frequently develop much larger bunches than at first anticipated, while those started naturally, or much later, have not come up to expectations. I account for this apparent anomaly in this way. Those forced being kept growing in a close warm house are "run out" to their fullest extent, while abundance of air has the effect of causing the late bunches to be more sturdy, and more berries have to be cut out than is necessary in the case of early bunches.

The *Muscats* that are most difficult to set, and seeing how much superior they are in point of quality, it is much to be regretted they are really comparatively hard to cultivate. In some few cases they have been well set under cool treatment, but as a rule they need a

higher night and day temperature, or from 70° to 85° from the time they have reached the flowering period till they ripen. On no account would I depend upon merely distributing the pollen by tapping the rods, as I have seen clouds of it fail to effect the desired purpose, probably owing to the heaviest and most potent falling to the ground. Nor would I use anything in the shape of a camel's-hair brush, plume of *Pampas Grass*, or any other invention for distributing the pollen, these frequently scratching the delicate pistils, and thereby doing more harm than good. The hand gently passed over each bunch is effective and never injures, and if pollen is scarce some from more free-setting sorts, such as *Black Hamburgs* and *Alicantes*, may be first accumulated on the hand before applying it to the *Muscats*. The mere act of carefully fertilising the flowers will not always insure a regular set, swelling off much also depending upon the general health of the Vines, as well as the nature of the border in which they are rooting, an absence of lime in the famous *Longleat* borders being rightly blamed for the inability of many of the *Muscat* berries to stone properly. Again, if the rods are crowded the bunches are unduly shaded, and in consequence are much too weakly to set properly. Let them have plenty of light, this materially strengthening the bunches and largely contributing to an even set. Bunches that have a tendency to run out extra long shoulders may well have these shortened considerably before they flower, and very long bunches may be thus early shortened with advantage. Nor should too many bunches, or all that show, be left on with the idea of having plenty to eventually select from. Better by far resort to a timely and moderate thinning, this concentrating the strength of the Vine on those reserved, thereby improving the chance of a good set.

Muscat Hamburg, when at its best, is the best of all Grapes, but it is a most fickle variety, and in many gardens where given a fair trial it has proved most disappointing, owing entirely to its failure to set properly. Very large bunches, and these are usually plentifully produced, have never to my knowledge set at all satisfactorily, and I would advise their early removal and only the smaller bunches retained. These if treated similarly to the *Muscats* will sometimes set regularly. *Madresfield Court*, which is supposed to possess *Muscat* flavour, sets as easily as *Black Hamburgs*, but the case is very different with *Mrs. Pince*. We were fairly successful last season with this late-keeping, and in my estimation high class variety. It was treated much the same as advised in the case of *Muscat of Alexandria*; the hand, however, being first well charged with pollen from the *Alicante*. *Alnwick Seedling* at first refused to set at all evenly, and the syringing method of setting was quite a failure. For two successive seasons we have set with the hand, this removing the very prominent globules of moisture resting on the stigmas, and which hitherto prevented a set, and as the pollen is potent enough our bunches were as well set as could be wished for. We also pass the hand over the bunches of *Gros Colman*, *Lady Downe's*, *Alicante*, *Gros Guillaume*, *Golden Queen*, and *Mrs. Pearson*. It may not be necessary in every case, but I always prefer to be on the right side.—W. IGGULDEN.

ROSE-GROWING FOR BEGINNERS.

(Continued from page 360)

TEA ROSES.

THESE are really the cream of the Rose world—they are the nobility, the upper ten—and this arises partly from the fact that they are much more delicate than the H.P.'s. This defect in their constitutions—defect it is, in this cold country, without doubt—naturally makes them scarcer in quantity, raises the price, and enhances their value. In this part of the kingdom they are looked upon as being much more delicate than they really are; in fact very few persons hereabouts would think of planting them in the open. But beyond their being scarce, which I gave as a reason why they are so much prized, I think the Tea Roses are much more beautiful than any other kind. The lovely pale yellow, pink, and lemon tints are not to be found among their more robust brothers and sisters. Where is the H.P. that can approach in colour to *Maréchal Niel*, or *Catherine Mermet*, or *Madame Charles*? Where is the H.P. that will continue giving us crop after crop of its flowers pretty well all the year round as *Niphetos* does? By-the-by, I noticed some remarks in one of the papers complaining of this Rose. The writer said it was a fraud, or something similar. He complained that it was simply composed of two rows of petals; it was thin, it was poor; one day it was a nice long pointed bud—the next, it was all open and fallen away. If this gentleman had ever seen a real *Niphetos*—a real good one, I mean, he would not talk like this. Possibly the Roses he produces may be the poor specimens he describes; but if he will take the trouble to go to one of the large London shows this year he will probably see more than one *Niphetos* there that will astonish him.

If the beginner propose to grow Tea Roses out of doors in the north, he must give up all idea of standards, and procure some dwarf plants on the Briar. These should be planted in raised beds, such beds as described in a former paper, but the soil should be light, and old manure to the extent of one-third of the whole should be added. Peat and leaf soil, gravel, sand, and charcoal, or all the latter three, should also be mixed in, to insure thorough drainage, and to keep the soil porous. Water lodging about the roots of Tea Roses is pretty sure to finish them off. In these beds the Roses should be planted; if from the open ground, in the early autumn; but if pot plants are procured, these should be planted out in May, which enables them to become established in the ground before the following winter. In the late autumn the soil should be drawn up round the bases of the plants, and a good thick layer of dead leaves strewed over the surface of the bed. The branches of the plants should be tied together, and dried fern or hay should be fastened round them. With these precautions Tea Roses will generally live through hard winters. In the spring, after the frosts have ceased, the soil may be drawn away—there need be no hurry about this—and the shoots cut back to the base just as advised for H.P.'s. This cutting back, or hard pruning, answers well with all the dwarf-growing Teas, but the Gloire de Dijon section, and other rampant growers, will not bloom if cut so closely. The branches of these must be fully protected, and they must be treated on the long-pruning system. These are best grown on walls, and can be protected by means of mats hung over them. In the open, the best plan is to drive in three strong stakes round each plant, and to tie the mat round these.

Autumn is the real season to enjoy Tea Roses in the open. When the H.P.'s have bloomed and are past we shall find the Tea Roses still covered with buds. But we require fine dry weather to enjoy them. After a few cold damp nights we find the outside petals of the blooms stuck together and decaying, and a few such nights, or a wet day, sees the destruction of many beautiful flowers. The falling temperature, and the dead leaves from the trees around, tell us only too plainly that winter is near. But arrived here, some beginner may say, "Why not grow Teas in pots plunged in beds outside, and when winter approaches take them up, put them under glass, and keep the wet from damaging the blooms?" This is a plan that may be followed where one has a house, or even frames for the purpose.

TEA ROSES UNDER GLASS.

There is no doubt that in this very bleak part of Her Majesty's dominions the best place to get the full value out of our Tea Roses is under glass. Here we can prevent the winter frosts from killing the branches back to the base, and here we can avail ourselves, to the fullest extent, of the advantages the Tea Rose gives us in growing and blooming very nearly always. I have heard it maintained that the plants can be kept growing and blooming all the year round, but my experience is against that; still I believe that the Tea Rose can be made to bloom—without injury to the plant, I mean—for a much longer period during each year than the H.P.'s; what I mean to say, to put it more clearly, is, that a Tea Rose may be made to start growing, and to bloom, then to rest, and to bloom again much quicker than is the case with an H.P. In addition, the Tea Rose will thrive and make a fine plant in this way under such treatment as would utterly ruin an H.P. A gardener I had once tried the continuous system in this way. We had a lot of Tea Roses in pots which had been growing and blooming all through the spring and summer under glass. These should have been dried off and allowed to go to rest to ripen the wood in the ordinary course during the autumn, but he, being anxious to get some fine flowers in the early spring, as he thought, kept them growing and flowering up to Christmas. The flowers, of course, became smaller and more puny as time passed, and I need hardly say that the spring flowering was a complete failure. I am firmly of opinion that all plants require to have their proper amount of rest, and they cannot be made to do without it. You may grow on a Niphetos—I mention this Rose as being the best for the purpose that I know of—and get a crop or two of flowers from it, then rest it for a few weeks, then start it off again and get another crop of flowers, and so on for several crops, but at last it becomes necessary to let the plant stop and have a real downright rest of some duration, the longer the better. If a plant be run too hard there can be only one result, it must have an extra long rest, and even then it may be permanently damaged. If we have a nice house full of Tea Roses, we may fairly expect to have flowers nearly all the year round with a little management.

There are two ways of growing Tea Roses under glass—in pots and planted out. There are also two makeshift methods; these are frames, and glass copings or other coverings for walls, against which the Roses are to be grown in a similar manner to the way in which fruit trees are.

TEA ROSES IN POTS.

These may be potted in the same way as advised for H.P.'s, but the soil should be lighter. The composition of it might be the same as that recommended for the H.P.'s, except that more sand and charcoal should be added, so that there should be no chance of the pots becoming at all water-logged.

In a young state Tea Roses do not require pruning to anything like the same extent as H.P.'s. A young Tea Rose puts up one shoot from the bud at first. This shoot generally carries a flower bud, and in course of time, after flowering, the plant breaks from the base and sends up other shoots from there, and this it will keep on doing while ever there is any life or vigour left in it. If the plant appears to be getting long and leggy in the single shoot stage, and there is no appearance of a bloom bud, the point of the shoot should be pinched out, which will cause the plant to throw out side shoots very quickly. If the plant be one of the strong-growing kinds, the first shoot will not often bear a bud, but will grow on and form a very long single stem. In this case I advise that the point of the first shoot should be taken out while the plant is very small, which will result in our having three or more shoots of moderate length at the end of the season, instead of one very long one. Where we have space, or a long length of roof, the shoot might be allowed to grow to its full length unstopped, when by bending it down horizontally the following season every bud would break and a fine show of flowers be the result. In the case of these large-growing varieties, if it be desired to grow them in pots, a good plan is to train the shoots round upright sticks stuck into the pots, but personally I prefer to see them climbing up pillars or wandering over the roof of the house. In repotting the smaller growers, great care must be taken not to overpot them. If the roots do not take quick possession of the soil it is apt to become sour, and then the plant cannot thrive.

Where Roses are grown—either in pots or otherwise—under glass, or in positions where the frost does not affect them, I think the old wood may be allowed to remain longer than I have advised for plants in the open. I have an old pot plant of that lovely variety Caroline Kuster, and some of the wood is certainly more than two years old, but nevertheless it gives me fine blooms, and lots of them (of course I keep cutting out the oldest wood occasionally, allowing new to take its place).

At one time I repotted all my Tea and other Roses once a year, whether they wanted it or not, and I think now that that is the reason why I never really succeeded with them in those days. If we give a plant a lot of new soil and manure to root into, it grows beautifully and makes nice long shoots; but I take it this is not exactly what we want from pot Roses, we look more for blooms. The best way to get these is not to allow so much wood to be made, but to turn it into bloom. This can be done by allowing the plants to become potbound, and only repotting them when it is absolutely necessary. Where the pots are full of roots, other things being attended to, we may look for fine flowers in quantity. I do not think it wise to cramp young plants in very small pots; if we do so they can never become large specimens, but I am of opinion that 8 or 9-inch pots are quite large enough for fair-sized plants.

There is one great advantage in having our Tea Roses under glass in pots, and that is, that we can put them all outside in autumn to ripen the wood. This ripening is most necessary if we desire success, and though we open doors and windows to the fullest extent, the plants cannot get the benefit of the night dews, and the hard weather generally, if they are planted permanently in inside borders. As I wish to avoid repetition, I shall defer the remarks on the general treatment of Tea Roses in pots to the paper on "Forcing and Growing Roses under Glass."

Tea Roses planted out under glass are in a much better position for taking care of themselves than when they are in pots. The growth of the plants is more luxuriant, and they are larger, and when thoroughly established give a greater quantity of blooms. It is no uncommon thing for a Maréchal Niel to favour the owner with a thousand blooms in a single season, and these come generally all at once, or nearly so. When Maréchal Niel begins to give blooms at intervals during the year, there is likely to be a screw loose somewhere, depend upon it. He would be a very sanguine individual indeed who would expect to get anything like this result from a plant in a pot. In a large house beds might be constructed on the level, about 2 feet deep, edged with brickwork. The hot-water pipes could be arranged to run along the edges of these beds. In these beds the Roses might be planted out, and in such a position as this the central plants might be standards, with smaller growers in the front rows. Where Tea Roses are planted out the greatest care must be exercised in the draining. I know from personal experience that they will not thrive permanently unless the water can get clear away. They may do well for a time where the beds are newly made up, but as the earth settles and chokes the drainage,

and the soil becomes solid and waterlogged, so in the same proportion will the Roses cease to thrive, and gradually dwindle away.

At King's Acre, Hereford, there is a beautiful Rose house. If I remember, it is 200 feet long and about 25 feet wide. Here are planted out trees of all the best varieties of Teas—they are old plants now, and some of the stems are as thick as Kidney Bean poles. It is a "far cry" to Hereford from here, but I think it would be well worth the trouble to make a pilgrimage there at the right time of year, just to see the grand old plants in bloom.

The Americans grow their Tea Roses on benches. These are simply board or slated stages, on which are placed old turf and other good things to the depth of a few inches only. On these stages the Roses are planted out, and I have no doubt they flourish.

A few words in reference to the makeshift methods. Where we have frames, I think the best plan would be to plant the Roses out in permanent beds, these beds being made of such a shape that in winter and early spring the frames could be placed over the plants to protect them. Loose hay should be put lightly round the branches during the severe weather, but in spring, when the buds begin to move, this should be taken away. The lights should be removed all through the winter, whenever the weather is mild. In wet weather they should not be closed, but arranged to throw off the rain, while still admitting the fresh air. Light frosts during the winter do no harm, while on the other hand, keeping the lights closed encourages mould and mildew. Where Tea Roses are planted against walls under glass copings, canvas should be arranged in front to cover them and protect them from the frost. This canvas should not be left on except in severe weather.

After a hard night's frost there generally comes a brilliant sunshine in the morning. This sunshine, following on the frost does, in my opinion, the greater part of the damage. To prevent this, mats or canvas should be laid on frames to keep the sun off, while the canvas on walls should not be removed until the sun has ceased to shine. In cold houses, too, some similar precaution must be taken.

The pruning of Tea Roses may be referred to here. With them we must not expect to produce such regular bushy plants as we do with the H.P.'s. I only know of one Tea Rose that really grows naturally so, and that is Marie Van Houtte, the foliage and habit of which are beautiful, as are the blooms. At the beginning of the season, or any time when the plants are dormant, we may remove as much wood as we think proper, bearing in mind two things; one, that the Gloire de Dijon section, and the rampant growers generally, if cut in too hard, will probably behave as the vigorous growing H.P.'s do, and give us growth instead of blooms; and the other, that, with the smaller growers, the harder we prune, the finer will the blooms be. When the plants are growing, and have leaves on them, pruning is a mistake. Here the best plan is to bend down the old shoots, when we shall soon get a lot of fresh breaks to take their places.

LIST OF TEA AND NOISETTE ROSES.

Anna Ollivier.
The Bride, s.
Catherine Mermet, s.
Comtesse Nadaillac.
David Pradel.
Devoniensis.
Gloire de Dijon, s c.
Grace Darling.
Edith Gifford.
Innocente Pirola.
Jean Pernet.
Jeanne d'Arc.
Mdm. A. Jacquier.
Mdm. Charles, s.
Mdm. C. Guinoisean, s
Mdm. St. Joseph.
Mdm. de Watteville.
Mdm. Cusin.
Mdm. Falcot.

Mdm. Lambard, s.
Mdm. Willermoz, s.
Marie Van Houtte, s.
Niphotos, s.
Perle des Jardins.
Rubens, s.
Safrano.
Souvenir Paul N. yron.
Souvenir Gabriel Drevet.
Souvenir d'Elise.
Souvenir d'un Ami.
Sunset.

NOISETTES.

Céline Forestier, s c.
Maréchal Niel, s c.
Rêve d'Or, s c.
W. A. Richardson, s c.
Caroline Kuster, s.

NOTE.—Those marked S, are suitable for growing as standards; those marked C, as climbers; while any of them may be grown in pots.

—D. GILMOUR, JUN.

(To be continued.)

NARCISSUS CALATHINUS.

THE Daffodils are all beautiful in some degree, but there is now such a large number of varieties, and the differences between them are so small, that one requires to make a special study of them to appreciate the extremely fine distinctions. For my own part I prefer a few of the best marked types, or some of the acknowledged species, and these com-

prise plants of much more simple grace than scores of the lauded novelties. One of these specific types is *Narcissus calathinus*, which this year I have had in charming condition, both in a greenhouse and outside. A large pot filled with bulbs has afforded flowers for nearly two months, and they are only now just getting past their best. The plants were grown in the greenhouse until the flowers fully expanded, when they were removed to a room and placed near a window, where they remained fresh for a surprising time. Very light loam was used, and this seems to suit them best if grown out of doors, when a warm sheltered position must be chosen, and a thoroughly drained position. The flowers are of a delicate pale yellow tint, almost white, and most gracefully formed, the cup very even and beautifully proportioned, while the sharply reflexing petals impart a distinctive character to the drooping flowers. These are usually borne singly, but are sometimes produced in pairs. The leaves are narrow and elegantly arched. The bulbs small, ovoid, and dark brown. It is a scarce plant in a natural state, being



Fig. 65.—*Narcissus calathinus*.

found in only one or two European districts, and though known for a long period it had been lost to cultivation for some time, until a few years ago.—H. H. M.

EARLY LEEKS.

BY August last year many of our early Leeks weighed 3 lbs. each. They were blanched a distance of about 8 inches, were as thick as one could span, and had a very massive appearance. They gained several first prizes, were very pleasing to look at, profitable for exhibition, and excellent in the kitchen. They remained sound and good until January, but such early Leeks cannot be recommended to be kept for spring use. Later sown and more hardily grown ones keep best, but many have a hankering after early and large Leeks, and by beginning in time and treating them well there is no difficulty in growing them to a large size. The seed must be sown in heat in February, and as they advance in growth they must be gradually withdrawn from this until they will bear exposure in the open by the first week in May. Some growers keep them a long time in heat and feed them then until they are upwards of 1 foot in length; but we do not approve of this treatment, as such plants are slow in starting into growth when planted in the open, and they rarely make handsome specimens. If grown in moderate heat near the glass, and always withdrawn to a cooler place before they become elongated, sturdy plants will be the result, and these may be placed

out now without receiving the slightest check or being in danger of seeding prematurely.

Good Leeks may be grown by planting them about 1 foot apart on the level ground, but the easiest and best mode of securing long blanching specimens is to grow them in trenches. These should be thrown out at a distance about $2\frac{1}{2}$ feet from centre to centre, making the trench 1 foot wide at the bottom and banking the soil up on each side. They must be 8 inches or 10 inches down from the level, and when dug out apply the manure. This should both be good and plentiful, as it is almost impossible to give them too much. We fork it in to the bottom of the trench largely, and apart from this we generally try to mix a quantity of small loam and manure in about equal parts, and place this in the trench to the depth of 2 inches or 3 inches. The Leeks are then planted in it and soon commence growth.

Previous to planting, we invariably grow them in boxes at a distance of 2 inches or 3 inches from each other, and in lifting them from these to plant, we take the utmost care to secure a good ball of soil to the roots. They are planted at a distance of 1 foot in the trenches if the weather is dry, immediately afterwards they are watered freely. As they gain size liquid manure is given liberally in dry weather, and as soon as they gain a few inches in height earthing is begun and continued every fortnight until they are of the desired size. We find frequent earthing suit them better than at long intervals, and the soil is pressed very firmly to the stems. Probably some may think that $2\frac{1}{2}$ feet from row to row is a great space for Leeks, but one of these large specimens is as valuable as four or five ordinary Leeks, and as soon as the trenches are thrown out for them the ridge planted with Lettuce, which attain a size that we have tried in vain to secure on the level ground.—A KITCHEN GARDENER.

ANTHRACITE COAL.

HAVING had some experience with this coal, I have much pleasure in giving my opinion thereon for the benefit of "Davertry." I consider it an excellent fuel, a long way in advance of coke or any kind of coal I have yet tried. The fire is easily kept in by its use. It does not burn nearly so rapidly as other kinds of fuel, while a much greater amount of heat is obtained from it, and it certainly requires much less attention than ordinary coke, and it is several shillings per ton cheaper. We consider that two tons of this coal is equal to three tons of coke, and the young men who have to use it are loud in their praise of the smallness of the labour, the ease with which the heat can be maintained in the various houses, the cleanliness, and the small quantity of ashes made from it. Another important point in its favour which should not be lost sight of is its smokeless character. There appears to be no smoke from the chimney, which in our case is not more than 20 feet long from the top of the boiler—a saddle with a waterway back, it has a good draught, which is all in favour when using anthracite coal.

I will cite an instance of the lasting qualities of this coal over coke. A short time since a new saddle boiler was fixed to heat the mansion. The flue and chimney were connected with one of the stacks of chimneys, but quite independent in its working. This, owing to its tallness, rendered the draught very sharp, but it was capable of being regulated with the damper. The boiler was found to be too small for its position and requirements, inasmuch as when the fire was made up, at say six o'clock in the evening, piling as much fuel on as possible, and checking the draught, it was found in the morning at seven that the fire had burnt out and the pipes had become cold, therefore a considerable time was required to light the fire anew and raise the requisite heat in the house, which is warmed by coils of pipes. To obviate this defect in the heating, and to save such a loss of time each day, we were persuaded to try anthracite coal, with the result that by making up the fire at the same time as previously with coke, next morning at seven o'clock there is always plenty of heat everywhere throughout the house, and so much unburnt fuel in the furnace that very little addition is required to the fire to maintain the necessary heat, and until the same afternoon, when at five o'clock the fire is again made up for the night. Thus it will be seen that our fire only requires attention twice a day, and not at all during the night. We find the coal burns best when kept moist and broken into pieces about the size of a cricket ball, or perhaps a little larger. It forms so few clinkers and ashes that very little poking at the bars is required to keep them clean. For the reasons I have stated I consider this coal a boon to gardeners.—E. MOLYNEUX.

ROSES AND MIGNONETTE.

THE conservatory at Hillside House, Hythe, Kent, the residence of H. Makeson, Esq., is gay with a well-grown collection of Roses in pots, and, we may say, hundreds of blooms of *Maréchal Niel* and *Gloire de Dijon* on climbers overhead. The flowers of the latter old variety are particularly fine; some of them can be truly described large, globular, high centred, and free from coarseness; blooms which would grace any exhibition stand of Teas. The pot plants are vigorous and clean, each bearing from half a dozen to twenty well-developed flowers. Such well-tried sorts as the following are included:—*Annie Laxton*, *Baroness Rothschild*, *Duke of Edinburgh*, *Dupuy Jamain*, *Countess of Rosebery*, *Madame Lacharme*, *Magna Charta*, *Marie Rady*, *Prince Camille de Rohan*,

Anna Ollivier, *Devoniensis*, *Jean Ducher*, *Niphetos*, and *La France*, which, as a pot Rose must stand alone. There are several half-standards of this variety, with heads about 2 feet through, carrying splendid blossoms, very large, perfect in shape, while the petals possess that satiny texture so much admired, and in outdoor Roses so easily spoiled. The gardener, Mr. Hewitt, certainly deserves credit for producing such a display. It may be of use if we hint his practice. When received from a nursery, in pots, during the autumn of 1885, the plants were given a slight shift, pruned closely in the winter, and "brought on" steadily in a vinery where heat is employed only to keep out frost and on dull days. After flowering last spring the plants were again repotted, mostly into those of 9-inch diameter, plunged out of doors in ashes, where they made capital growth; and started again this season with the Vines. By the healthy colour of the foliage it is seen that stimulants have been judiciously applied.

We must also notice the *Mignonette*, which is unusually well grown. Sown in 5-inch pots in August last, thinned out to three plants in each, placed in pots 9 inches across in February, using ordinary soil containing a good quantity of mortar rubbish, grown on a greenhouse shelf and several times pinched. This is the treatment these bushes have received, for they are now from 2 to 3 feet through, in full bloom, filling the house with the pleasant scent peculiar to that old-fashioned flower.—S.

INDIAN EXPERIENCES.

(Continued from page 358.)

LABOUR to cultivate the Coffee estates was derived from several sources, but consisted chiefly of Canarese coolies from the adjoining Province of Mysore; which being purely an agricultural country the labourers, both men and women, proved excellent workers. The average rate of wages paid to these people was 4 annas or 6d. per day to the men, and 2 annas or 3d. per day to the women. But if the women worked all the six days they received a gratuity of 4 annas, which made their week's pay up to 1 rupee, or 2s., and out of these sums they managed to save sufficient to take back with them to their country to pay taxes and other charges on their small holdings in Mysore. The working season in Wynaad usually lasted from beginning of May till end of March, or eleven months of the year, the different members of a family taking it in turn to work on the Coffee plantations and on their own holdings in the Mysore. The food of these labourers consisted mainly of cakes and a kind of porridge made from the ground grain of the raggy plant (*Eleusine coracana*), which indeed is the staple food of the whole native population of Mysore. Curried meat and vegetables were used with this food according to caste. Rice was seldom used by this class of native, believing as he did that raggy cakes or porridge contained more sustaining elements, and that he was enabled to perform a better day's work on it than on rice or any other grain. The grain, which resembles millet in size and appearance, is ground in real Eastern fashion between two small round granite stones, which are exposed for sale in almost every bazaar. They are about 18 inches across and 6 inches thick. The nether stone is a fixture, whilst the upper stone is turned by a handle and has a cavity in the middle through which the mill is fed with grain. Two women are usually allotted to the task of grinding, and are frequently seen outside the doors of their huts seated on the ground with the millstones placed on an outspread garment, but too often recently taken from the body and on to which the flour falls and is afterwards collected for use. The wages above quoted were considerably in excess of what the labourer could obtain in his native village; he had therefore the greatest inducement to migrate to the Wynaad, in order that he might save money to assist him in the working of his little farm. But his anxiety on this score, in too many cases, led him to pinch himself in the matter of food in order that he might have the heavier purse when the season's work had ended. This led to disastrous consequences with regard to his health and constitution, in too many instances resulting in disease and death.

The general system in India of advancing money in various sums to the native before he will undertake to do work of any kind, obtained at one time to an extraordinary extent on the Coffee plantations, and was frequently the cause of great annoyance and heavy loss to the planter. Sums ranging from 50 rupees to 500 rupees were advanced to each of the duffadars or gangers before returning to their country for the purpose of procuring and advancing gangs of coolies to perform the work of the plantation for the ensuing season; and it was no uncommon thing for a single estate of from 200 or 300 acres to have an outstanding advance of from £100 to £300, of which there was no chance of recovering a single penny for at least eight or ten months after disbursement. These duffadars were invariably bound over by properly drawn up agreements on stamped paper, but these contracts were not unfrequently more honoured in the breach than the observance, the men having every temptation to expend a large portion of the sums on matters appertaining to their own private affairs in connection with their farms, &c., and, as a consequence, often failed to appear with their promised gangs of coolies at the appointed time, causing great loss and vexation to the planter, who had rarely any redress whatever. Warrants for arrest were difficult of execution, and when the delinquent did happen to be brought before a magistrate, tried, and perhaps sentenced to two or three months imprisonment, the planter could then only recover his money through the aid of the Civil Court, a plan rarely adopted, the defaulter being in nine cases out of every ten a man of straw. Local labour to a limited extent was generally available, the jungle tribes already spoken of being excellent axemen and clearers of

jungle. Labour from Calicut, Cananore, and other parts of the Malabar Coast was frequently drafted into the Wynaad, the mopalah and their castes undertaking contract work, such as clearing, pitting, weeding, &c., at so much per acre. But as these men, like the others, would never begin work by any chance without first receiving an advance, much money was lost in consequence. In the matter of wages and rates of contract planters were not always of one opinion, which the native was not slow to find out and take advantage of, giving his services of course to the highest bidder.

A brief outline of the general mode of Coffee culture in Malabar may not be uninteresting in this place. The jungle, whether Bamboo or forest, is first felled and lopped. Bamboo clumps are felled close to the ground, but trees of all sizes are cut from 2 to 3 feet from the ground to suit the convenience of the workman. These are left on the ground for six weeks after the last tree is felled, by which time the burning sun and strong east winds have done their work, and the clearing is then fired all round and allowed to burn towards the centre. Sometimes the fire did its work in a most efficient manner, clearing the ground of all branches, undergrowth, and saplings, and leaving nothing but the charred stumps and trunks of the larger trees. At other times, from various causes, the fire would simply run through the felling, burning patches here and there and leaving the remainder to be lopped, heaped, and burned by the planter at considerable extra cost. Burning a clearing of 150 or 200 acres in extent on forest land was usually a grand sight, the huge columns of smoke and flame rising to an immense height, and sometimes destroying the surrounding standing forest to a considerable extent. When what was called a "good burn" took place, the soil was usually burned and baked to a depth varying from 3 to 9 inches, all the top or vegetable mould being destroyed, which was always, of course, a drawback to future cultivation, but which could not be avoided, as no other "paying" method of clearing the land of the dense mass of vegetation could be devised. Small patches have been left without firing till all the vegetable matter has decayed before planting with Coffee with wonderful results with regard to crops; but this method was never known to be a success financially, even leaving out of sight the danger of accidental fires. Any attempt to get rid of the charred stumps and trunks of the large trees remaining on the ground after firing, even if desirable, would have been out of the question on the score of expense, but in reality they were of great use on very steep lands in preventing the washing away into the ravines below of the loose soil during the heavy monsoon rains, which frequently amounted to 12 to 15 inches in the twenty-four hours.

After clearing, the ground was marked out by driving in pegs at regular distances of 6 feet apart, after which pits were dug from 18 to 24 inches cube, according to the nature of the soil, and then filled in for the reception of the Coffee plants. Every endeavour was made from the commencement to keep the ground as clear of weeds as possible and to prevent their seeding; and this—with the exception of staking, tying, and stopping the trees—made up the sum total of Coffee cultivation up to the end of the third year after planting, when the trees yielded their first crop. There was always a marked contrast in the item of expenditure on account of weeding between Bamboo and forest lands for the first few years, the former being much more difficult to keep clear of weeds owing to the more forcing nature of the climate and the distinctiveness of the vegetation. What was termed "hand weeding" was frequently adopted on the forest clearings, which consisted of pulling up by the hand all weeds as they appeared from the time of first planting the Coffee and depositing them in pits dug at intervals over the estate for the purpose; seeding was thus in a great measure prevented for some years, and the cost of weeding per acre did not usually amount to one-half that on Bamboo land.—PLANTER.

(To be continued.)

PARSLEY.

EXCEPTING perhaps the Potato there is no vegetable with which I am acquainted that there is such an all-the-year-round demand for as Parsley. In the general run of vegetables the cook can substitute Peas for Beans, Asparagus for Spinach, Salsafy for Turnips, and Tomatoes for Vegetable Marrows, and things may go on comfortably in this way; but if a reply of "No Parsley" is given once and continued for a short time there will soon be some dissatisfaction.

There is only one enemy that Parsley growers have to contend against, and that is grubs at the root. They are the cause of almost all the Parsley dying, and if they can only be guarded against there is no danger of failure from other causes. Sometimes the plants become yellow and die before they have the rough leaf; in other cases they will become large and robust, and appear a permanent success, when they will suddenly droop and decay, and if this happens in the autumn when there is no time to rear more plants, the winter will generally have to be passed without any Parsley in the garden. Those who have had no experience of its failure and know little of its culture never think of introducing means to prevent its destruction when sowing the seed. As soon as it is noticed that the plants are dying antidotes are applied; but as a rule it will be found that these are useless, as when once the grubs get into the roots nothing will reach them that will not kill the plant. No matter how well ground has been prepared for Parsley there is always a danger of grubs appearing, and it is very advantageous to give it a good dressing of salt, lime, or soot before sowing or planting. We have not been troubled with Parsley grubs or failures for years, but we dress the land just the same before introducing it, and I believe this

is the secret of success. I am a great believer in soot as an antidote, and all growing Parsley should have a good sprinkling of this cheap stimulant during wet weather. As a rule two sowings of Parsley are better than one. The first should be made early in the season (March is a good time to sow), and the other in June or July, as the former will be most useful in summer and autumn and the latter in winter and next spring; and early summer Parsley bears transplanting well, and as soon as the young plants can be handled they may be thinned and replanted. We are about to carry out this practice. Old Parsley plants are not very trustworthy at this season. They will furnish gatherings for a time, but they all show a tendency to run to flower. This detracts from their usefulness, and the sooner the Parsley of this year's sowing is ready the better.—A KITCHEN GARDENER.

SOOT AS AN ANTIDOTE FOR CHRYSANTHEMUM APHIDES.

LAST year while waiting for tobacco powder, which has hitherto been considered the orthodox destructive of aphides on the tops of Chrysanthemums at this time of the year, I was curious to try the effect of dusting them with dry soot. I am particular in noting that the soot must be dry and finely powdered. To my great satisfaction it proved instant death to the green flies, without doing the Chrysanthemums any apparent injury. This year, so far, I have used it more largely in the same way, especially with Lilies. If used dry it will not even soil the fingers, and can be washed or syringed off in an hour afterwards. It has the advantage also of being a manurial agent, and for the Chrysanthemum is almost indispensable, giving that brilliant healthy glossy green colour to the foliage so much admired. Dry soot direct from the chimney is very acrid and pungent, and in the case of young succulent Chrysanthemum shoots it would be advisable, should your readers try it this way, to have the plants dry. Not even the fingers need be soiled if a small tin duster is used, but the soot to be of any use this way must not be kept where it can absorb moisture or get wet, which it is pretty sure to do in any glass structure. Those who have not hitherto tried this had better only use it with a plant or two and observe the results. I cannot speak of the effects of soot water for this purpose, but should say it would hopelessly discolour the foliage if the solution was strong enough to kill aphids.—W. J. MURPHY, *Clonmel*.

SCOTTISH AURICULA AND PRIMULA SOCIETY.

THE first Exhibition of this recently formed Society was held in Edinburgh on the 4th inst., and its promoters had the pleasure of seeing the tables filled with a goodly number of plants. Mr. Ben Simonite, who judged the Auriculas, considered the Show a very good one, but thought there was room for some improvement in bringing forward and setting up this plant, many of the pips having been rubbed and damaged in transit. Some 400 plants were staged, and at least another 100 were so damaged at the hands of railway porters as to be unrepresentable. One gentleman, who had been at some expense in having proper boxes made for carrying the plants having had the indescribable vexation of seeing his boxes set up on end, and their inmates were found to be so badly damaged that he refrained from staging a plant. A large number of the plants shown were too young to produce good trusses, but that was greatly the fault of the season, which has been a late one for Auriculas, and strong plants were not generally in bloom. One large grower could not forward a plant, and expects it will be another fortnight before his blooms are forward.

For six stage varieties Mr. Stratton, Annfield, Broughty Ferry, was placed first of seven exhibitors. General Niel was very fine in this collection, and to an example of George Lightbody (Headley) the prize for best grey edge was awarded, and also a silver medal as the premium plant shown. Mr. Marshall, Ayr, was second, Aeme and Robert Trail being his two best plants; Mr. White, Killingworth Colliery, Newcastle, was third, Rev. F. D. Horner being very fine.

Nine growers staged four varieties, Mr. White being first, Confidence and Prince of Greens being fine; the latter plants had the prize for the best green edge; Mr. Black, East Calder, second; and Mr. Marshall third.

For two varieties, eight staged, Mr. White was again first with Dr. Kidd and Ajax; Mr. Black second; and Mr. Kilgour, Blair Drummond, third.

For one green edge Mr. Kilgour was first with Admiral Wisbey; Mr. Scott, Forgan, second with Lovely Ann; Mr. Black third with Admiral Napier; and Mr. White fourth and fifth. For one grey edge Mr. White was first with Geo. Lightbody, and third with Frank; Mr. Marshall second with Geo. Lightbody; and Mr. Black fourth and fifth. For one white edge Mr. White was first with Aeme, and fifth with Dr. Kidd; Mr. Black second; and Mr. Marshall third and fourth in each case with Aeme. The first prize self was a fine Blackbird shown by Mr. Kilgour; Mr. White second with a seedling; Mr. Marshall third and fourth; and Mr. Stratton fifth. To Garibaldi, a plant of Mr. Kilgour's, was awarded the prize as the premier self in the collection.

For six Alpine Auriculas Mr. Turner, Slough, was first with very fine examples, Rosalind, Hotspur, Lady Grosvenor, Sunrise, Mungo, McGeorge, and Troubadour being the sorts; Mr. Marshall second; and Mr. Black third. Mr. Turner was again first with four Alpines. Prizes were also offered for Polyantheses and various Primulas, but these were generally very poor.

Several collections of Auriculas were exhibited, Mr. Cathcart

Pitcairnie, staging thirty sorts in strong well grown plants, Alexander Meiklejohn, and a plant of Rev. F. D. Horner, with thirteen pips, being fine. From Mr. Stratton came about fifty plants. Messrs. Dickson and Co., Mr. Forbes, Hawick; Mr. Kilgour, Mr. Bryson, Helensburgh; and Mr. Boyd, Faldonside, Melrose, staging small collections. From Mr. Boyd came also some noteworthy species of *Primula Reidi* from Tirsul, 12,000 feet up the Himalayas, being especially fine, the flowers of a whitish tint of grey, and with a surprisingly delicious fragrance. *Primula floribunda*, *P. fainosa*, *P. Murettiana*, *P. mollis*, *P. denticulata* nana, and varieties of Sieboldi were also represented. In the same group was a specimen of *P. Reidi* from the Botanic Garden, and of *P. Stuarti purpurea*, and a fine truss of *Rhododendron Nuttalli* from the same place. Mr. Calder, Bellevue, Edinburgh, showed some beautiful seedlings (six) of *Primula viscosa*, and eight of *P. viscosa*, to three of the latter first class certificates being awarded. These were Rob Roy, of a reddish crimson shade; Flag of Truce, white; and Calderi, rose magenta.

A first class certificate was also awarded to Mr. Kilgour for a dark maroon self Auricle named Edward Miller. Mr. Simonite brought for inspection a boxful of pips of the newer of Rev. F. D. Horner's seedlings, as well as a few of his own.



At a general meeting of the ROYAL HORTICULTURAL SOCIETY at South Kensington, Maxwell T. Masters, M.D., F.R.S. in the chair, the following gentlemen were elected—viz., Rev. William Page, B.A., as a Fellow; Jean Van Volxem, 1, Rue Zinner, Brussels, as a Foreign Member; and Dr. G. Dieck, Zoschen, near Merseburg, Prussia, as a Corresponding Member.

At the meeting of the Linnean Society at Burlington House on the 5th inst., MR. A. H. KENT of the Royal Exotic Nursery (Messrs. James Veitch & Sons), was elected an Associate of the Society.

GARDENERS' ORPHAN FUND. — Will you allow me through your columns to urge upon gardeners the desirability of filling up and returning by Saturday, the 21st inst., forms relative to the above in order to enable the Committee to decide upon future action in this important and interesting undertaking?—GEO. DEAL.

MR. E. MAWLEY informs us that the date of HITCHIN ROSE SHOW has been changed from Thursday, July 7th, to Friday, July 8th. Some more alterations are in contemplation, and later on he will send us a revised and final list of Rose show fixtures for the season. We are also requested to notify that the Reigate Rose Show is postponed from July 1st to Thursday, July 7th.

WE are desired to state that Mr. Viccars Collyer is now in Palestine on a visit to Mr. Lawrence Oliphant, at Haifa (or Caifa) with a view to open up commercial relations with that country in connection with horticulture, &c.

WE have received from Rev. W. Kingsley of South Kilvington, near Thirsk, flowers of a MONCEOUS AUCUBA JAPONICA. It is usual for male and female flowers to be produced in different plants. In this case, however, the two sexes are on the same plant. We remember some years ago seeing an instance of this on a seedling plant raised by the late Mr. Standish of Ascot. Whether this character has been perpetuated or not we do not know, but it is no doubt an advantage to have an Aucuba with both sexes on the same plant, as a supply of berries is thereby insured.

HYACINTH EXHIBITION IN READING.—Messrs. Oakshott and Millard, Royal Counties Seed Establishment, Reading, have had on exhibition during the week a very interesting collection of Hyacinths. The flowers have been grown on the large Dutch bulb farms in the neighbourhood of Haarlem. The collection numbered seventy varieties, tastefully arranged in Messrs. Oakshott & Millard's front premises in Belgrave Street, and have been a source of admiration to those persons who accepted invitations to inspect them.—(Berkshire Chronicle.)

"B." writes, "The difficulty of procuring GOOD MIGNONETTE SEED is a source of yearly provocation to many gardeners. My method puts an end to that. Just now we have a number of beautiful plants from

seed saved at home, and the best of all is set aside for seed. We do not overburden the plant. The top of each flower spike is pinched off, and about ten capsules left to swell. Fifty capsules to a 6-inch pot are quite enough to yield a supply, and the quality is good."

How very beautiful a well-grown and profusely flowered specimen of RHODODENDRON COUNTESS OF HADDINGTON is, we had evidence the other day in Mr. C. M. Major's garden at Croydon, a plant, or rather small tree there, having considerably over a thousand flowers expanded, the trusses comprising from six to twelve blooms. Some distinct and richly coloured seedling Phyllocacti were also flowering, and the very rare *Cereus grandiflorus* Maynardi will flower in a short time.

THE AMERICAN EXHIBITION.—This has been previously referred to in our columns, or rather the pleasure grounds, which comprise several acres, well designed and planted by Mr. William Goldring. For obvious reasons a little time must elapse for the development of the attractions of this section of the Exhibition, and on Monday last public attention centred on the opening ceremony in the chief building, and the delineation of life in the "Wild West." This was an extraordinary spectacle, or rather a series of spectacles, totally unlike anything that has hitherto been seen in England or in Europe. Circuses and hippodromes are mimics in comparison with the magnitude and wild realism of the scenes in which skill in horsemanship and the use of the rifle is displayed in a manner that drives gardens and civilisation out of the mind for the time being. This Exhibition is not for London alone, but for the kingdom, and visitors to the metropolis will be certain to find their way to Earl's Court, and they will not be likely to forget what they see, if they see all that is to be seen, at this wonderful Exhibition.

At the ordinary meeting of the ROYAL METEOROLOGICAL SOCIETY, to be held at 25, Great George Street, Westminster, on Wednesday, the 18th instant, at 7 P.M., the following papers will be read;—"Brocken Spectres and the Bows that often accompany them," by H. Sharpe; "Results of Thermometrical Observations made at 4170 and 260 feet above the ground at Boston, Lincolnshire, 1882-86," by William Marriott, F.R.Met.Soc.; "Snow Storm of March 14th and 15th 1887, at Shirenewton Hall, near Chepstow," by E. J. Lowe, F.R.S., F.R.Met.Soc.

MR. T. LAXTON has sent us for cooking a sample of his NEW CHAMPION X MAGNUM BONUM POTATO. We had some steamed in their jackets, others steamed without. No Potatoes could be more light. They were like balls, not of flour, but pale sulphur, and decidedly fuller and better in flavour than some good white floury Potatoes with which they were tested. Those cooked after peeling were the more delicate in flavour, and better Potatoes we could not desire; but as most persons know Potatoes are influenced by soil and cooking, those referred to were evidently grown in good soil, and we think they were prepared by a good cook.

WE have received a schedule of the ALEXANDRA PALACE ROSE SHOW, which is to be held on July 14th, 15th, and 16th this year, the Secretary being Mr. J. S. Cooke. Twenty classes are provided, five for nurserymen, six for amateurs, and the remainder open. The largest prizes are offered in the nurserymen's class for seventy-two Roses, single trusses, first £7, second £5, and third £3. The principal amateurs' class is that for forty-eight Roses, single trusses, first prize £5, second prize £3, and third prize £2. The others ranging from £4 to 10s.

MESSRS. ALEX. DICKSON & SONS, Royal Nurseries, Newtownards, Co. Down, Ireland, send us a coloured illustration of their "new pedigree seedling HYBRID PERPETUAL ROSE EARL DUFFERIN," which portrays a rich dark crimson maroon Rose of good size and excellent shape, with vigorous growth and foliage. It is one of several seedlings now being offered to the public, and in raising which Messrs. Dickson & Sons state that they have "proceeded on well thought-out lines, using as parents the most perfect varieties only, and the results in several instances have been most gratifying." Earl Dufferin is said to be deliciously fragrant, and has been honoured with seven first-class certificates in Ireland and Scotland. A great authority on Roses has characterised it as "undoubtedly a grand Rose," and judging by the plate before us it fully deserves such commendation. Lady Helen Stewart (crimson scarlet), and Miss Ethel Brownlow (salmon pink), are others of the same series, the former a Hybrid Perpetual and the latter a Tea.

THE EXHIBITION OF ORCHIDS provided in Mr. B. S. Williams'

Victoria and Paradise Nurseries, Upper Holloway, was opened yesterday (Wednesday), and will be continued until June 25th. The large span-roof house, 100 feet long by 22 feet wide, is devoted to the Orchids, which are tastefully arranged with foliage plants, and comprise a number of rare and beautiful species and varieties. There are, as usual, many other attractions in the nursery at the present time. We learn that Mr. B. S. Williams has been awarded two gold medals and prize of honour for collection of Orchids, new and rare plants, Cyclamen, Amaryllis, Imantophyllums, books, &c., exhibited by him at the Dresden International Horticultural Show, which was opened on the 7th inst.

— By the accident of inserting the figure 8 instead of 3 in our reference to MR. SIMPSON'S WATERPROOF LABELS on page 354 last week, these labels are represented as being 8 inches long. Their length is 3 inches—a much more convenient size for use in gardens.

— LEWISHAM AND DISTRICT FLORAL SOCIETY.—The usual quarterly meeting of this Society took place on Friday evening last, when an excellent paper on the cultivation of the "Zonal Pelargonium" was read by Mr. Bryant in the absence of Mr. T. W. Sanders. Mr. Sanders dealt with his subject in masterly style, and treated fully on the culture of the plant from the cutting and seed to the exhibition table. At the close of the paper a discussion ensued, in which Messrs. Jupp, Drake, Needs, and Nunn took part. An additional interest attached to the meeting in the shape of a highly creditable display of plants and flowers exhibited by the members. Notably among these was a fine group put up by Mr. Needs of Catford, consisting of Zonal Pelargoniums, Cinerarias, Spiræas, Arum, Lilies, tree Carnations, and foliage plants. Mr. Searle showed some very pretty Cinerarias, Azaleas, together with some neat little foliage Begonias. Mr. Drake, the indefatigable Hon. Secretary, was represented by some good specimens of Azaleas very fully flowered, his plant of Ceres being specially fine. Messrs. H. Cannell & Sons of Swanley showed some splendid trusses of Zonal Pelargoniums and remarkable spikes of Mignonette, as well as beautiful blooms of the Pride of Penshurst, yellow Carnation. Votes of thanks were accorded to the various exhibitors, also to Mr. Sanders for his paper.

— "THE rich FLORA OF THE PHILIPPINE ISLANDS has hitherto been most imperfectly known," says *Nature*, "in fact it has been practically only represented in European herbaria by the collections of Cuming, which, though rich, were made in a limited area. It was only therefore to be expected that the explorations made by Dr. Sebastian Vidal, of Soler, director of the Botanic Garden at Manila, and of the Commission for studying the forest flora, would add to our knowledge a profusion of new and interesting species. Dr. Vidal has on two occasions visited Kew with his collections, which have quite realised the expectations that had been formed of them. There was some reason to fear that the work might, on financial grounds, have to be interrupted. But from a communication made to Kew by the Spanish Minister, we are glad to learn that although the Botanical Survey Commission entrusted to Dr. Sebastian Vidal had been at one time suppressed in the Budget of 1887-88, it was afterwards re-established in view of the great importance of the work."

— AMONGST the fifteen candidates nominated for election as Fellows of the ROYAL SOCIETY on June 9th, the two following are well-known botanists and naturalists:—George King, M.B., F.L.S., superintendent of the Royal Botanical Gardens, Calcutta, and of the Government Cinchona plantations of Darjeeling; formerly superintendent of the Botanical Gardens of Saharanpur; author of "Notes on the Lion of Aboo" (Proc. Asiat. Soc. Beng., 1868); "On the Birds of the Goona District" (Journ. Asiat. Soc. Beng., 1868); "Notes on the Vegetable Products and Farm Foods of Rajpootana and Marwar"; "Observations on the genus Ficus, and on the Fertilisation of *F. hispida*"; "A Monograph of Indian Figi" (in course of publication). Eminent as an Indian botanist and quinologist, and for the services he has rendered to botanists and naturalists in India. Sir John Kirk, G.C.M.G., M.D., F.L.S.; H.M. Agent and Consul-General, Zanzibar; chief officer and naturalist of Dr. Livingstone's Government expedition to the Zambesi, Nyassa Country (1858-63), during which he made large collections, observations, and drawings of great scientific value; author of numerous contributions to the botany, zoology, and geography of Eastern Tropical Africa, published in the Journals of the Linnean and Zoological Societies, the "Ibis," &c. During Sir John Kirk's residence of nearly twenty

years in Zanzibar he has rendered most important services to the various expeditions despatched by English and foreign Governments and by private bodies for the exploration of Central Africa, directing their routes, superintending their equipments, and encouraging them in the formation and transmission of zoological, botanical, and ethnological collections.

— It is stated in a recent issue of *Le Jardin* that during fêtes of the Battle of Flowers at Nice this year, about 80,000 francs were expended in flowers in two days, chiefly Roses (Safrano and Comte Bobrinsky), Chrysanthemum Etoile d'Or, Anemones, Wallflowers, Roman Hyacinths, Jonquils, Pinks, Violets, and *Acacia dealbata*. The decoration of one Victoria required 1500 dozens of Jonquil flowers and 300 dozen bunches of artificial Cherries. On the 1st of January this year there arrived at the Halles in Paris from Nice 18 millions of Roses, 1,200,000 Camellias, and 15,000 trusses of Lilae.



ORCHIDS AT CAMBRIDGE LODGE.

If there are any lingering doubts that Orchids can be successfully grown in the metropolitan district they would be effectually dispelled by a visit to the celebrated collection in the possession of R. J. Measures, Esq., Cambridge Lodge, Camberwell, which is remarkable not only for the number of rare, valuable, and beautiful forms it contains, but also for the fresh vigorous health of the plants, so well grown by the gardener, Mr. Simpkins. The garden is within three miles of Charing Cross, and is, we believe, the most centrally situated collection of Orchids in London, where fogs and smoke are far too abundant to be agreeable. Nearly the whole of the available space is covered with well-built and well-designed houses, of which no less than sixteen are exclusively devoted to Orchids, and it is becoming difficult to accommodate the frequent additions being made to the collection. Mr. Measures has not filled his houses with common species or varieties, but has made a most careful selection of the rarest obtainable, the value of which in many instances is increasing annually; and especially is this the case with the hybrid *Cypripediums* and others like the celebrated *C. Stonei platytanum*. *Cypripediums* are indeed a specialty at Cambridge Lodge, for the collection now comprises 235 species, hybrids and varieties, some of the better known being represented by exceptionally large handsome specimens, while all are distinguished by their fine condition. One house devoted to *Cypripediums* in flower was very attractive at the time of our visit, the plants being arranged with Ferns and a few light graceful Palms like *Coccos Weddelliana*. The house is a small one, span-roofed, and not much more than 12 feet square, with a side stage extending from the door round the house and projecting in the centre opposite the door, where a beautiful bank is formed. Amongst those in flower were *C. laevigatum*; *Dauthieri*; *Warneri* and variety *biflorum*; *Harrisianum*; *caudatum* and the varieties *Warszewiczii* and *roseum*; *callosum*; *barbatum pulcherrimum*; a very interesting plant, apparently a natural hybrid between *Hookeri* and *hirsutissimum*, the leaves resembling the former and the flowers the latter; *Boxalli atrata*, a handsome plant of this richly coloured dark variety; *calurum superbum*, beautifully coloured; *Curtisi*; *euryandum* with six fine flowers; *Argus*; *Hookeri* and the light variety *Bullerianum*; *niveum*, and the rare variety *punctatissimum*; *vernixium*; *Lowi*; *Boxalli superba*; *callosum*; *ciliolare*, a very handsome variety of this fine *Cypripedium*; *insigne sylhetense*, the summer-flowering variety of *insigne*; *barbatum*, a grand variety like one of the best *Lawrenceanums*; *tonsum*; *Argus mosaica* with large flowers and richly spotted petals; *Peareei*; *supereiliare*; *Warneri*; and *Swannianum*. Most of these were flowering freely, and in other houses were more plants, the principal collection containing the rarities being in a long house in another portion of the gardens; and there is a large plant of *C. Wallisi* with three spikes, one of which produced three flower buds, one has two buds, and the third has one; when the flowers are expanded the plant will be remarkably handsome. There are scores of other rare and beautiful plants, but two deserve special notice; these are *Cypripedium Cambridgeanum* and *C. Ernestianum*, which are represented in figs. 66 and 67. These are imported plants, and have flowered for the first time this year. *C. Cambridgeanum* was imported by Messrs. Hugh Low & Co., Clapton, and flowered last March. It is very suggestive of *C. oenanthum* both in shape and colouring, the dorsal sepal being particularly beautiful, heavily veined, with dark crimson and a slight white margin, the lip greenish with a purple tinge, and the petals similar but darker, and with a slight fringe of hairs near the base. *C. Ernestianum* is a very striking form of the *Dayanum* type, which was introduced by Messrs. Shuttleworth & Carder, and flowered last February. The dorsal sepal is of elegant shape, white distinctly veined with bright green, the petals tinged with green at the base, veined with pale crimson, white at the tip,

and margined with slight purplish hairs. The lip is long, green, marbled with a darker shade, tending to yellowish brown, the throat near the staminode being dotted with rose. It is a bold handsome form, and if it be regarded as a variety of *C. Dayanum* it is quite distinct from the ordinary types, and superior to the majority.

The houses, which are filled with so many other orchidic treasures, are all well constructed and admirably adapted for the culture of these plants. The details of arrangement inside with regard to stages, supply of water, &c., have been carefully considered and judiciously carried out. In the majority the side stages are formed of an iron framework and supports, with cross pieces of T iron, about 9 inches apart, supporting slabs of Portland cement. Upon this is spread a layer of fine coal, which has been preferable to several other materials employed in a similar way, retaining moisture and not providing a harbour for insects or encouraging the growth of confervæ. In several cases a small water pipe is taken along beneath the stage, a short pipe with a tap passing through it in a convenient position, so that the shelves can be readily flooded with water at any time. This is a great advantage, saving much labour and rendering it easy to have a constant moisture rising beneath the plants, which adds greatly to their health. Tanks are provided under

The collection of *Masdevallias* is a full one, comprising fifty-four distinct forms, and including plants of such valuable types as *Normani* and *Bulls' Blood* with the best of all the others obtainable. *Phalenopsis*, *Chysis bracteescens*, *Saccolabiums*, and the beautiful *Phaius tuberculosus* are found in another structure. The *Chysis* is evidently quite at home, the principal point in its treatment being a season of three or four months thorough rest. That it appreciates this is evident, for some of them have spikes with ten flowers, others with eight. The *Phaius* has also been exceptionally good, the plant having this season borne a raceme of ten flowers. In the *Dendrobium* house is a good general collection, together with several exceptional specimens, one of which is *D. Griffithianum* with 300 pseudo-bulbs, no doubt the grandest plant in cultivation and the value of which would run into three figures. This specimen has nine racemes showing, and another but slightly smaller has six. *Brymerianum*, *Schröderi*, *fimbriatum oculatum*, *suavissimum Cambridgeanum*, *allosanguineum*, *crassinode*, and *Wardianum* are all well represented.

The *Cattleya* house, about 70 long, contains a most valuable collection of the best *Cattleyas* and *Lælias*, the mere enumeration of which would fill a small volume, and it must suffice to say that they include several



Fig. 66.—*CYPRIPEDIUM CAMBRIDGEANUM*.

all the stages at the sides of the walks, and as much rain water as possible is caught and used almost exclusively for supplying the plants, and to this some portion of the success of the plants is attributed, the beneficial results being also evident in the fresh bright green appearance of the sphagnum used in surfacing, especially in the cool houses. In some open lattice stages are employed, but the others, which were constructed on the design of Mr. Ernest Measures, are much better suited to the plants. Light hexagon netting blinds are employed for the roofs of the houses, while for the sides where much exposed similar material nailed on light frames a few feet square and easily secured by small bolts top and bottom have proved very useful. Indeed, one of the notable features of the garden is the prevailing neatness and thoughtfulness manifested in the most minor details, all of which, however, conduce to the success achieved.

It would be impossible to give a full description of this collection in one notice, and we hope to revert to it again, but a few words will serve to show its general character. The *Cymbidium* house contains some grand specimens of *Cymbidium Lowianum*, one of which has six racemes with nineteen to twenty-three flowers each, the variety a highly coloured one, the lip being especially rich. *Aerides* and *Vandas* of the choicest species and varieties have a house devoted to them, the former comprising thirty or forty forms. Of the best *Cœlogyne cristata* varieties there are some large plants, one of *C. cristata alba* being one of the best we have seen.

specimens exceeding 100 guineas in value, and all are distinguished by most robust health. Then, too, in the *Odontoglossum* house is a collection which would alone render a garden noted, and there are several other houses similarly well occupied. Altogether Mr. Measures has every reason to be proud of his Orchids and their fine healthy condition. —L. CASTLE.

THE SALE OF ORCHIDS AT DOWNSIDE.

THE sale of surplus plants in Mr. W. Lee's collection at Downside, Leatherhead, attracted a large number of orchidists on Tuesday and Wednesday, May 3rd and 4th, the prices realised being astonishingly high, and proved how well the value of the best and rarest Orchids is maintained. The sale was conducted by Messrs. Protheroe & Morris, and the principal purchasers were Baron Schröder, Sir Trevor Lawrence, A. H. Smee, Esq., Sidney Courtauld, Esq., R. J. Measures, Esq., R. H. Measures, Esq., with Messrs. J. Veitch & Sons, B. S. Williams, J. Sander, W. Thomson, Ireland & Thomson, Thibaut & Kotelcer, Vervaeke, and Jules Hye. The great sensation was the plant of *Cypripedium Stenocladum*, which was sold to Baron Schröder for 310 guineas, the highest sum ever paid for one Orchid. The total amount realised in the two days' sale was nearly £6000.

The following are some of the principal plants, with the prices obtained:—

Cattleya Trianae var. *Atalanta*, fine strong plant, twenty bulbs, four

leads, from the Brentham collection ; not the same as described in Mr. B. S. Williams' Manual, but finer ; £23 2s. *Cattleya Trianae Percivaliana*, fine healthy specimen covered with foliage, one of the very best varieties, with over 200 bulbs and thirty leads ; £26 5s. *Laelia elegans* var. *alba*, large plant in teak basket, 26 inches by 21 inches, grand specimen, from Mr. F. Sander ; £42. *Masdevallia*, the original Bull's Blood, part of the plant certificated at the Botanic Gardens, Regent's Park, May 8th, 1873, and then called *Denisoniana* ; a superb variety ; £32 11s. *Cattleya Trianae* var. *eboracensis*, thirteen bulbs, three leads, from Messrs. Backhouse ; £42. *Cattleya Trianae Dayana*, twelve bulbs, two leads, splendid variety, named in honour of Mr. John Day ; £56 14s. *Masdevallia Normanni*, considered by some to be finer than Bull's Blood ; £27 6s. *Cattleya Trianae Emperor*, thirteen bulbs, two leads ; £46 4s. *Cattleya Trianae Colemanii*, twelve bulbs, two leads, the finest *Trianae* in the late Mr. Coleman's collection of

dark variety ; part of the plant figured in Mr. B. S. Williams' "Album," vol. iv., plate 187. This variety is very scarce. From Messrs. J. Veitch and Sons ; £52 10s. *Cypripedium Morganiae*, eleven growths, grand specimen, showing flower spikes ; Messrs. J. Veitch & Sons' hybrid *C. Veitchi* × *C. Stonei* ; the finest of all hybrid *Cypripediums*, from Messrs. Veitch ; £178 10s. *Cattleya Trianae Emilie*, thirty-seven bulbs, nine leads, fine plant, charming variety ; £32 11s. *Coelogyne cristata alba*, twelve leads ; the flowers this year exceeded in size every other *cristata* ; from Mr. Wm. Bull ; £57 15s. *Cattleya Trianae Osmani*, six bulbs, one lead, part of Mr. Dodgson's celebrated plant ; £94 10s. *Cattleya Trianae Lecana*, thirteen bulbs, two leads ; £199 10s. *Oncidium superbiens*, strong plant, in 11-inch pot, figured in "Album," vol. vi., plate 276 ; £23 2s. *Cypripedium acanthum superbum*, Messrs. J. Veitch & Sons' hybrid *Harrisonianum* × *insigne Maulei*, Veitch's special variety, figured in "Lindenia," vol. i., plate 33, from Messrs. Veitch ;



Fig. 67.—CYPRIPEDIUM ERNESTIANUM.

Stoke Park ; £24 3s. *Laelia elegans Wolstenholmiæ*, seven bulbs, one lead, fine plant, figured in Mr. Warner's "Select Orchids," part 2, plate 29 ; from Mr. Day's sale ; £42. *Cattleya Skinneri oculata*, splendid specimen in basket, 30 inches by 30 inches. 314 bulbs and 60 leads ; exhibited in splendid condition at the Orchid Conference, 1885 ; £73 10s. *Cattleya Amesiana*, six bulbs, one lead ; Messrs. J. Veitch & Sons' hybrid *crispa* × *maxima*, a splendid rival of *Cattleya exoniensis*, figured in "Orchid Album," vol. vi., plate 253, from Messrs. J. Veitch & Sons ; £68 5s. *Cypripedium microchilum*, five growths, Messrs. J. Veitch and Sons' hybrid *niveum* × *Druryi* ; figured in "Lindenia," vol. i., plate 50, from Messrs. J. Veitch & Sons ; £25 4s. *Cypripedium javanicum* × *superbiens*, seven growths, Continental hybrid of *Monsieur Bleu's* ; not named ; £44 2s. *Cypripedium Wallisi*, four growths and breaks ; the white *caudatum*, from Messrs. Low & Co., scarce ; £61 10s. *Dendrobium Phalaenopsis*, four bulbs, one lead, has flowered at Downside, the fine

£28 7s. *Cattleya Trianae Dodgsoni*, eight bulbs, two leads, part of the original plant ; in no other collection ; figured in "Album," vol. vi., plate 249 ; £73 10s. *Cymbidium giganteum*, large specimen ; £23 2s. *Saccolabium Harrisonianum* (or *giganteum album*), in large basket, eighteen growths, 119 leaves. This plant bore sixteen spikes of its lovely white flowers this year. It is a splendid specimen, and probably the largest in cultivation ; £162 15s. *Laelia bella*, six strong bulbs with leaves, one lead. This plant is in grand condition ; it is one of Messrs. J. Veitch & Sons' most splendid hybrids, *purpurata* × *autumn-flowering labiata*. Baron Schröder had R.H.S. certificate, April 14th, 1885. Bought from Messrs. Veitch ; £180. *Cypripedium vexillarium*, splendid plant, eleven growths, Messrs. J. Veitch & Sons' hybrid, *barbatum* × *Fairieanum*, from Messrs. Veitch ; £33 12s. *Cattleya Trianae Osmani*, four bulbs, one lead, part of Mr. Dodgson's celebrated plant ; £63. *Cypripedium grande*, seventeen growths and breaks, grand specimen, in

18-inch pot, Messrs. J. Veitch & Sons' hybrid *C. Roezlii* × *caudatum*, from Messrs. Veitch; this plant was exhibited at the Orchid Conference; £68 5s. *Cattleya Skinneri* alba, twenty-eight bulbs, seven leads, fine plant, and pure white var., without any trace of colour; £33 12s. *Cypripedium tessellatum* porphyreum, Messrs. J. Veitch and Sons' selected best variety, hybrid *barbatum* × *concolor*, figured in "Lindenia," vol. i., plate 41, very scarce, bought from Messrs. J. Veitch and Sons; £78 15s. *Cymbidium Lowianum*, grand specimen; £21. *Angraecum caudatum*, four fine growths. This is one of the finest specimens, and is in splendid condition; figured in "Botanical Magazine," vol. lxxiv., t. 437°; £37 16s. *Laelia elegans* Turneri, twenty-three bulbs, three leads, fine variety; £31 10s. *Odontoglossum Hrubyianum*, three breaks, flowered this year with a spike of fifty-one of its fine white flowers. R.H.S. certificate to Mr. Lee, February 10th, 1885. A very rare plant; £29 8s. *Cypripedium Harrisianum* superbum, four growths, Messrs. J. Veitch & Sons' grand variety; bought from Messrs. Veitch; £27 6s. *Masdevallia Harryana* rugosa, flowers deeply furrowed; a very grand flower, crimson-blue, in shades of colour probably in no other collection; fine plant, in 13-inch pot; £48 6s. *Masdevallia Harryana* Russelliana, in pan over 2 feet in diameter, very fine specimen and very grand variety, has borne 130 expanded flowers at one time; £52 10s.

Cattleya Amesiana, eight bulbs, one lead, Messrs. J. Veitch & Sons' hybrid *erispa* × *maxima*. A splendid rival to *Cattleya exoniensis*, figured in "Album," vol. vi., plate 253; bought from Messrs. J. Veitch and Sons; £94 10s. *Cypripedium selligerum* majus, true, twelve growths; Messrs. J. Veitch & Sons' fine var. hybrid *C. barbatum* × *C. laevigatum*, figured in "Lindenia," vol. i., plate 49, bought from Messrs. Veitch; £44 2s. *Vanda suavis*, splendid specimen, and best variety, six growths, the tallest with twenty pairs of leaves; £21. *Cattleya Trianae* alba, eighteen bulbs, three leads, fine and true; £21. *Cattleya Trianae* Osmani, seven bulbs, one lead, part of Mr. Dodgson's celebrated plant; £105. *Trianae* Emiliae, ten bulbs; £24 3s. *Laelia elegans* var. *marginata*, fine specimen, seventy bulbs, twelve leads, from Mr. F. Sander; fine variety; £35 14s. *Laelia elegans* Turneri, twenty-seven bulbs, five leads, grand variety from Messrs. Low; £33 12s. *Saccolabium Heathi*, the white *Blumei* majus, five growths, forty leaves, strong healthy plant in grand condition, in basket. This is said to be the only plant ever found, though the forest where it was discovered has been carefully searched; £157 10s. *Cymbidium Parishii*, six bulbs and growths, a very fine plant, figured in "Album," vol. i., plate 25; 52s. 10s. *Cattleya exoniensis*, seventeen bulbs, two leads, very strong plant, and the very finest variety; from Mr. B. S. Williams, 1878; £105. *Cypripedium marmorophyllum*, nine growths, this plant was exhibited by Mr. Lee at the Orchid Conference, and was much admired as being a very fine variety; Messrs. J. Veitch & Sons' hybrid *Hookerae* × *barbatum*; £21. *Cypripedium Lecanum* superbum, nine growths, Messrs. J. Veitch and Sons' hybrid, insigne *Maulei* × *Spicerianum*, part of the original plant as figured in "Album," vol. v., plate 223; £32 11s.; *Cypripedium Stonei* platytanum, four growths, from Mr. Day's collection, figured in "Warner's Third Series," plate 14. This plant was exhibited in flower at the Orchid Conference, and is flowering now. It was bought after a spirited competition by Baron Schröder for £325 10s., the highest price yet paid for an Orchid. *Laelia purpurata* var. *Williamsi*, twenty-seven bulbs, five leads, figured in "Album," vol. i., plate 9 and 10. A grand variety; £67 4s. *Cattleya Trianae*, *Exoniensis* lip variety, thirty bulbs, six leads; a splendid variety, bought from Messrs. J. Veitch & Sons; £21. *Laelia grandis*, large specimen, perhaps the finest in the country, eighty-six bulbs, fourteen leads; bought from Mr. F. Sander, figured in "Album," vol. 3, plate 123; £94 10s. *Cattleya Mardeli*, nine bulbs, one lead, Messrs. J. Veitch & Sons' hybrid speciosissima × *Devoniensis*, fine healthy plant, received R.H.S. Certificate, May 13th, 1884, bought from Messrs. Veitch; £44 2s. *Odontoglossum Jenningsianum* (Reichenbach) described in Messrs. Veitch's Manual, page 26; £21.

JUSTICIA FLAVICOMA.

THE fashion for flowers has called into recognition all free-flowering useful, durable plants, but, unfortunately, this is still neglected, being seldom seen in gardens in quantity, but more frequently as a solitary specimen in the stove struggling between life and death. This is regrettable, for it is easy of culture, durable for decoration either in the stove, intermediate house, or conservatory. It can be had in bloom by the middle of December, and a succession can be maintained until the end of May or beginning of June. Its plumes of the brightest of yellow flowers just above the darkest of green foliage render it one of the most telling plants that can be employed for decoration. The *Celosia* with its golden plume is strikingly effective, but this *Justicia* surpasses it both for beauty and usefulness. To have fine plumes the former grows moderately tall, and is only useful for certain arrangements and positions, while the last can be produced any height from 6 to 18 inches clothed with foliage down to the rim of the pot, and therefore suitable for any place, even for standing singly in vases in the dwelling room. It may here be mentioned that after the first plumes fade, the plants must not be thrown away or the faded plume removed. The decaying flowers should be removed, and in a few weeks the old plume will produce fresh flowers and again be in full beauty; it will do this even a third time, and each time the plume will be larger and finer than the first. It will therefore be seen that with a few plants a long succession can be produced. The yellow heads of this plant have a

charming appearance rising above the flowers of Zonal Pelargoniums, Cyclamens, Primulas, Heaths, and such like plants. An arrangement casually made struck me as very effective the other day, and which has been admired by several. In a small house some fifty or sixty of these plants were being forced into bloom, and some *Calanthe Veitchi* were dropped in amongst them and elevated in pots; the rose-coloured flowers of the latter rising above the groundwork of dark green and yellow were very ornamental.

Old plants can be retained for growing on for another year; but for many purposes they are not so good as young stock raised annually from cuttings. Old plants lose their foliage at the base, in fact to the place where the young shoots start from. They do not attain the same vigour as young plants, and therefore produce less flowers, and are more susceptible to the attacks of insects during the growing season. After flowering old plants should be cut back, and when they have broken into growth the roots may be partially reduced and the plants placed into the same size pots or those of a slightly larger size. Subsequent treatment is the same as will be advised for young plants.

After flowering the plants grow rapidly in a temperature of 60° to 65°. They will do in much cooler quarters, but are longer before they start, and then grow more slowly. When the young shoots are a few inches long they are suitable for cuttings. These should be cut clean below a joint and the lower pair of leaves inserted. They may either be inserted singly or a number together in 5 and 6-inch pots in sandy soil; the last is invariably practised here, but the cuttings as soon as they are rooted must be placed singly into 3-inch pots. The cuttings root quickly and freely under bellglasses, as in the propagating frame, where the temperature ranges about the same as advised for starting them. Those who do not possess these conveniences can root cuttings in a hotbed prepared for Cucumbers and Melons. After insertion give a good watering, keep the cuttings close and shaded from strong sun until they are rooted. Cuttings may be inserted as early as they can be obtained, and in succession until the end of June.

This plant does not naturally branch freely—that is, in its early stages of growth, and to induce it to do so pinch the young plants when well established in their first pots, and only a few inches high. The majority will not make more than two shoots, but pinching is not advised a second time; indeed, it is only recommended for those plants that are rooted during the months of March, April, and the early part of May. The later cuttings should not be stopped, and often from these—in fact, generally—the largest plumes are produced. If larger plants are required than can be produced by growing them singly, five cuttings may be inserted in a 3-inch pot, and then grown together afterwards.

After the young plants are established in their first pots and pinched they will break into growth again by the time they are ready for placing into 5-inch pots, which is large enough for single plants. If five are grown together 7-inch pots should be employed; for late-struck plants 3 and 4-inch may be used, only potting the plants once—that is, from the cutting pots, or they may be inserted in the pots in which they are to be grown. The pots should be moderately drained, and the soil, especially for the last potting, pressed firmly in. They succeed well in a compost of fibry loam three parts, the other part being composed of leaf mould; to this may be added one-sixth of decayed manure and sufficient sand to keep the whole porous.

From the time they are established in their first pots they may be grown in a night temperature of 60°, with a rise by day of 5° or 10°, principally from sun heat, until they are placed in their largest pots. They will do very well plunged in a hotbed such as has been mentioned, in a heated pit, or even in a light position in a vinery. For ten days or a fortnight after potting keep them perfectly close until the roots have taken possession of the new soil, when the night temperature may be gradually reduced. By the end of June or beginning of the following month they can be placed in cold frames if the heated pit is required for other plants; if not, they can be grown in it with the heat shut off. Later plants must be gradually hardened, and afterwards subjected to the same treatment as those rooted earlier.

The treatment in cold frames is simple. Arrange the plants moderately close to the glass, the pots standing upon ashes or other moisture-holding material. For two or three weeks no air need be admitted by tilting the lights, for sufficient will enter by opening the frame for watering and syringing twice daily. Light shade must be applied during bright days for a few hours only. Under this treatment the plants will grow rapidly and sturdily, but from this time a little air may be admitted daily, except on very bright drying occasions. By the end of August very little shade need be employed, and it can be dispensed with by the end of the month. Throughout the following month the plants may be exposed during the day to more ventilation to harden them and bring growth to a standstill. By the end of September they should be dwarf sturdy plants with large bold foliage, nearly black, overhanging the rim of the pots.

When housing them provide a light position where the night temperature will not fall below 55°; no harm will really result if the temperature falls 5° lower. If wanted in flower by the middle of December place them in a temperature of 60° from the time they have completed their growth; by the cooler system of treatment they will flower about the middle of the following month. Those who cannot give so much heat need not despair of cultivating this plant, for it will remain in good condition in a house that is kept close where the temperature on cold occasions does not fall below 45°, but with this treatment they will be much later before they flower.

Insects never trouble young plants if grown in clean places and the method of culture detailed is carried out properly. They are, however, subject to mealy bug and scale. The mealy bug generally appears in the small leaves when growth is completed, and also in the flower stems. These should be picked out with the hand and destroyed. Scale infests the plants if they become checked, but as they appear should be removed with a sponge and a solution of Fir tree oil and water.—
WM. BARDNEY.

THE SANSEVIERIAS—BOWSTRING HEMP.

THE May number of the "Kew Bulletin" gives interesting particulars concerning the species of *Sansevieria* and their uses, several of the plants being well known in gardens as curiosities, and are also employed in sub-tropical gardens. Seven well marked species are named and described, grouped as follows:—1, Leaves comparatively thin and flat: *S. guineensis*, *S. longiflora*, *S. Kirkii*, and *S. thyrsiflora*. 2, Leaves semicircular in transverse section at the middle, deeply hollowed down the face: *S. zeylanica*. And 3, Leaves club-shaped, more like stems than proper leaves: *S. cylindrica* and *S. sulcata*. The following particulars are given concerning *S. guineensis*, one of the two oldest and best known species. It was first figured and described, long before the days of Linnaeus, in the year 1701, by Commelinus in his "Horti Medici Amstelodamensis Rariorum Plantarum Descriptio" (tab. 20), under the name of "*Aloe guineensis radice geniculata foliis ex viridi et atro undulatis variegatis*." Linnaeus classified it under the genus *Alctris*, and so did Jacquin, who figured and carefully described it in 1770 in his "Hortus Viindobonensis," vol. i., p. 67, t. 84. It has horny, erect, lanceolate leaves, 3 or 4 feet long, 3 inches broad at the middle, narrowed gradually to an acute apex, not distinctly bordered with red, copiously mottled on both surfaces with broad irregular bands of white. The flowers are in a lax, simple spike, which rises to the same height as the leaves, in clusters of three to six, with a whitish perianth about 2 inches long, of which the six segments are about as long as the cylindrical tube. It is a native of Guinea, from which we have wild specimens gathered by Barter and others. We have it also from Central Africa, collected by Schweinfurth and Grant, and Abyssinia by Beccari, and what is most likely the same from the Zambesi country, gathered by Sir John Kirk in 1860, the latter accompanied by a sketch made on the spot when he was botanist to the Livingstone expedition.

On the Zambesi *S. guineensis* appears to be called "Konje," and Sir John Kirk speaks of it as "yielding a valuable fibre similar to Manila Hemp." It is described as "growing in great abundance in many places, keeping to the shade of woods."

Mr. Horne, Director of the Royal Botanic Garden, Pamplemousses, mentions that—

"This plant thrives well in Mauritius in damp marshy places, in the lowlands. I have no doubt that it would thrive well in the wet uplands."

It is widely distributed in the West Indies, and has been grown experimentally for the sake of its fibre at St. Thomas, Jamaica, and Trinidad.

As regards cultural treatment, the following information is taken from notes prepared by the late Director of the Botanical Department, Jamaica, on this and *S. zeylanica*:—

"In the first instance plants may be put out at 3 feet by 3 feet, which, allowing for roads and paths, would give about 3000 to the acre. If the soil is kept well broken and moist these plants, by the extension of root suckers, will spread in all directions, so that ultimately the whole ground, with the exception of certain paths, which should be kept permanently open, will be covered with plants. As regards the time which must elapse between planting out and the first yield of leaves suitable for fibre, there would appear to be a great difference of opinion. Plants which I saw at St. Thomas at three years old were only just ready to be cut; and Baron Eggers, who had planted and kept them under close observation during the whole of that time, was of opinion that *Sansevieria* plants could not be depended upon to yield a crop before three or three and a half years.

"My own experience coincides with this, but necessarily much must depend upon the nature of the plants when first put out, the character of the soil, the amount of moisture received, as well as on the system of cultivation pursued.

"From actual trial tests in India, where one-third of an acre was cultivated with *Sansevieria zeylanica*, it appears that full grown leaves of 3 to 3½ feet long (their actual age is not mentioned) yielded about 1 lb. of clean fibre for every 40 lbs. of fresh leaves. That is, the weight of clean dry fibre was at the rate of 2½ per cent. of the fresh leaves. Dr. Roxburgh calculated that one acre would yield 1613 lbs. of clean fibre at a gathering, two of which may be reckoned on yearly, 'in a good soil and a favourable season, after the plants are of a proper age.'

"This would be at the rate of 1½ ton of fibre per acre per annum at the end of three or three and a half years (of the gross value at the rate of £30 per ton) of £45. Whether this return can be depended upon for the West Indies on an extensive area I am unable to say."

In an experimental trial carried on at Jamaica, 1185 lbs. of green leaves of *S. guineensis* yielded 29 lbs. 10 ozs. of dry fibre. This was cleaned by machine. The reports of brokers were as follows:—(A) "Value, £18 per ton, mixed fibre partly uncleaned;" (B) "Poorly cleaned, a good deal of mixture in it, not so strong, value about £25

per ton;" (C) "No good in the state sent; it has a lot of bark in it, and requires more dressing; both ends are clean, but the centre is dirty. Price, if dressed properly, would be as good as *S. zeylanica*—viz., £30 per ton."

In September last his Excellency Sir William Robinson, Governor of Trinidad, forwarded to Kew samples of fibre of this species, which he stated had been prepared "at the convict dépôt at Chaguanas without the aid of machinery of any kind." The report of Messrs. Ide & Christie on the Trinidad sample was as follows:—

"In point of cleanness and softness of fibre it seems well prepared; but to compete successfully with Manila Hemp it would require to be of a better colour and of equal if not superior strength. We value it for rope-making purposes at £20 per ton in London. The small piece of Manila fibre which we enclose has a value to-day (September 24th, 1886) of £31 per ton."

A few leaves taken from plants grown at Kew were recently passed through Deeth's fibre machine, but the result, owing to the smallness of the quantity and the necessity of adjusting the machine to the size of each leaf, was not satisfactory, but it is not devoid of interest. The report of Messrs. Ide & Christie on the sample of fibre submitted to them was as follows:—"Short and only moderate strength. Value £23 per ton. We reported on fibre from this plant from Trinidad, in September last, when we valued the sample at £20 per ton. The difference now is due solely to the advance in the price of Sisal Hemp."

Of samples of fibre of *S. guineensis* the Kew Museums contain one specimen machine cleaned from Jamaica, sent by Mr. D. Morris, 1884, with the following note:—"Leaves 3½ to 4 feet long, broader than *S. zeylanica*, mottled, unarmed, common, and easily propagated." A specimen from Trinidad, cleaned by hand, forwarded by Governor Sir William Robinson, and valued by Messrs. Ide & Christie at £20 per ton. Also a leaf, rope, and fibre from south-east Africa, sent by Mr. T. Bainés. A specimen of leaf and fibre from Sir John Kirk appears under the following label:—"Maculated *Sansevieria*, called 'Konje,' near Lupata, 1860." This is probably identical with *S. guineensis*.

CHRYSANTHEMUM AUDITS.

AMONG the several audits taken of the *Chrysanthemums* none has appeared to me to be more practical and useful than that given by "B. D. K." in the Journal for the 28th ult. Mr. Mawley's was useful in a sense, but to take any given show or any given date is not a safe criterion to go by, as there are so many of our finest exhibition flowers that vary in different seasons. Some varieties that may be generally at their best at a particular time one season, may be a week later or earlier another season, yet they may be just as useful to the exhibitor for some other show. Especially is this the case with exhibitors at the "National," who mostly have their own local and other shows to attend later or earlier in the season. If we take the two audits under notice there are several illustrations of my remarks. I will give two. First, *Duchess of Albany*: this variety, according to Mr. Mawley's list, would not appear to be a show flower at all, it is not mentioned once, yet in "B. D. K.'s," it has thirteen prizes alone. The second variety, is *Belle Paule*. Now, Mr. Mawley tells us this was only shown six times altogether at the National. And why? Simply because nearly all the early buds that would have given blooms for the National or Kingston were literally burnt, whereas those who were fortunate in having later buds, escaping the few days' excessive heat, came out grand for the later shows, and we find in "B. D. K.'s" list that the variety was actually shown in twenty-three first prize stands, thus placing *Belle Paule* nearer its proper position. Another season growers will be more on the alert and protect their plants at the critical time. There are not many varieties that give such minute buds as *Belle Paule*, or the few excessively hot days we usually have at the end of August and beginning of September, would play more havoc among the buds than it did with this variety last year. If the plants are removed to a shady position, or paper caps put over the buds during the hottest part of the day till the danger is over, we shall have plenty of *Belle Paules* another season.

Looking down the list of forty-eight Japanese varieties given by Mr. Molynex in his book, I think there is room for much improvements. Of course, every year in this section we add two or three new varieties that in the course of a year or two soon alter the position of previous lists; but with the long list of really fine varieties that we now possess we can hardly understand why such inconstant varieties as *Scapitre Toulousaine*, *Sarnia*, and *Red Gauntlet* should be recommended, or that such varieties as *Dr. Macary*, *Madame Deville*, *La Nympe*, and *L'Africaine* should shut out *Striatum* and *Comtesse de Beauregarde*. Mrs. Mahood, again, is very fine when it can be obtained, but it is so seldom that it is good that it should not retain the high position given it in the list. I should say it should change places with *Elaine*. How many of the 250 new Japanese lately introduced will find a place in the first forty-eight it is difficult to say, but if we glance down the audit we already find *Maiden's Blush*, *Madame John Laing*, *Gloriosum*, *Conquête de Castille*, and *La Triumphant*, all introduced since Mr. Molynex framed his list; besides which we have for next season *Eldouard Audiguier*, *Golden Meg Merrilies*, *Carew Underwood*, *Roi des Japonaise*, *Mdlle. Paule*, *Dufour*, all of which will take a very high position, while several others will make a good stand. Of the fifty varieties enumerated by "B. D. K." just one-half of them have been introduced within the past five years, and if the five last-mentioned varieties were put in their proper places we should find the newer

varieties stronger still. Mr. Molyneux speaks very disparagingly against buying novelties. Has there been a season since he scored his first success that new varieties have not been of considerable help to him? Methinks if every grower waited till the novelties were shown by someone else the greater number of them would die out on the very threshold of their existence. As it is, many of our very finest varieties have been years before finding their proper level, simply because we have not enough growers with sufficient pluck to try more of the novelties and bring out their merits or defects.—N. DAVIS, *Camberwell*.

ROYAL HORTICULTURAL SOCIETY.

MAY 10TH.

THE Cypripediums, the Daffodils, and Roses in pots were the most prominent features of this meeting, other miscellaneous exhibits being less numerous than usual.

FRUIT COMMITTEE.—Present—T. Francis Rivers, Esq., in the chair, and Messrs. J. Lee, Arthur W. Sutton, T. B. Haywood, Phillip Crowley, W. Warren, G. T. Miles, J. Woodbridge, G. Norman, William Paul, R. D. Blackmore, H. J. Veitch, J. Fitt, and J. Burnett. Mr. Norman, The Gardens, Hatfield House, Herts, sent six bunches of Lady Downe's Grapes, remarkably well kept, the berries plump and of good colour. A cultural commendation was awarded. Mr. W. Palmer, gardener to W. T. Hume Dick, Esq., Thames Ditton House, Thames Ditton, exhibited some fresh and good Black Hamburgh Grapes and a seedling Melon, which the Committee wish to see again. (Vote of thanks.) Mr. R. Parker, Impney Gardens, Droitwich, showed a seedling white-flesh Melon, and from the Society's garden at Chiswick were sent several specimens of seedling Rhubarb, with Hawke's Champagne, Linnaeus, and Victoria for comparison.

FLORAL COMMITTEE.—Present: G. F. Wilson, Esq., F.R.S., in the chair; Dr. M. T. Masters, and Messrs. W. Wilks, J. Fraser, W. Holmes, T. Baines, G. Duffield, J. Douglas, H. Bennett, H. Herbst, J. Walker, A. Bradshaw, R. Dean, B. Wynne, C. Noble, J. Dominy, H. Ballantine, H. M. Pollett, C. Pilcher, A. J. Lendy, E. Hill, and J. O'Brien.

At this meeting the Veitch Memorial medal and £5 were offered for the best collection of Cypripediums, and though there were only two competitors the display provided by the successful exhibitor was a remarkable one. The prize was awarded to Mr. Simpkins, gardener to R. J. Measures, Esq., Cambridge Lodge, Camberwell, whose admirable collection of Orchids is described in another column, and the plants shown on this occasion included some of the best. They were all very healthy, the flowers mostly large, and the colours good, and arranged as they were with Adiantums, Pterises, Cocos Weddelliana, and other graceful foliage plants they formed a most beautiful group, the honour accorded them being a well-merited recognition. The following is a list of the Cypripediums exhibited in bloom:—*Argus* four plants, *A. mosaica*, *A. nigro-maculatum*, *barbatum* two plants, and *vars. pulcherrimum*, *nigrum* five plants, *giganteum* and *O'Brieni*, *Boxalli* three plants, *B. superbum*, *B. atratum* two plants, *Bullenianum*, *cardinale*, *Curtisi*, *ciliolare* six plants, *callosum* three plants, *caudatum*, *c. roseum* four plants, *c. Warscewiczii*, *calurum*, *c. superbum*, *Druryi*, *Dauthieri*, *curyandrum*, *Harrisianum*, brown variety, *Haynaldianum*, *Hookeri*, *H. giganteum*, *insigne sylhetense*, *Lowi*, *laevigatum* four plants, *Lawrenceanum* nine plants, *niveum* ten plants, *n. biflorum*, *Peareei*, *Roezli*, *Röbelini*, *selligerum*, *supericiliare*, *Swanianum* two plants, *Stonei*, *tonsum*, *villosum aureum*, *vernixium*, *Warneri* two plants, *var. biflorum*, and two unnamed species. F. G. Tautz, Esq., Studley House, Hammersmith (gardener, Mr. J. C. Cowley), also had a smaller group of choice Cypripediums, comprising *Harrisianum*, *barbatum superbum*, *Petri*, *Druryi*, *Sedeni candidibulum*, *Lowi*, *concolor*, *niveum*, *Boxalli atratum*, and *Calceolus*, all healthy plants.

Messrs. J. R. Pearson & Son, Chilwell, Notts, showed a collection of Zonal Pelargoniums representing some of their beautiful varieties, very notable being *Clytie*, *cerise*; *Edith Pearson*, *scarlet*; *Rev. R. D. Harris*, *salmon scarlet*; *W. Bealby*, *scarlet*; *C. H. Swinstead*, *scarlet*; *Mrs. David Sanders*, *pink*; *Norah*, *blush*; *Constance*, *bright pink*, and *Aspasia white*, all single varieties. F. G. Tautz, Esq., sent specimens of *Odontoglossum Schillerianum*, with several *Cattleya* and *Phalaenopsis* flowers. Mr. R. Dean, Ealing, was awarded a cultural commendation for five varieties of *Polyanthus*, very rich in colour. Messrs. Shuttleworth and Carder, Clapham, exhibited the specimen of *Cymbidium tigrinum* previously noticed, also *Odontoglossum Carderi*. (Vote of thanks). Mr. J. James, Farnham Royal, Slough, showed flowers of his beautiful strain of *Calceolarias*, bright and varied in colours. (Vote of thanks). De B. Crawshay, Esq., Sevenoaks, sent a plant of *Odontoglossum crispum* Mrs. De B. Crawshay with large, well-formed flowers (vote of thanks). Mr. G. Cragg, Hornsey, showed a small group of seedling *Auriculas* (vote of thanks). Mr. R. Miller, Shoreham, exhibited plants of a *Regal Pelargonium* named *Pearl*, with semi-double white flowers, very free and good (vote of thanks). Messrs. T. Todman & Sons, Upper Tooting, exhibited a seedling *Rhododendron* from *R. javanicum*, named *grandiflorum*, having large orange yellow flowers $2\frac{1}{2}$ inches across, and about six in a head.

Messrs. Wm. Paul & Son, Waltham Cross, were awarded a silver-gilt Banksian medal for a handsome group of Roses in pots, comprising a number of choice varieties, both Teas and Noisettes. A bronze medal was adjudged to Mr. Wm. Rumsey, Waltham Cross, for four boxes of Rose blooms, those of *Souvenir d'un Ami* being extremely fine in size and colour. Messrs. Barr & Son, Covent Garden, had their usual beauti-

ful collection of Daffodils, with Anemones, Fritillarias, and other hardy flowers (silver Banksian medal). Mr. E. H. Krelage, Haarlem, sent collections of Tulips and Nareissi of many varieties (vote of thanks). Mr. T. S. Ware had a charming group of *Primula Sieboldi* varieties, miscellaneous hardy flowers, comprising *Muscari*, *Gladiolus*, *Colvilli albus*, and Daffodils in thousands of many excellent varieties (silver-gilt Banksian medal). Messrs. Collins, Bros., & Gabriel were awarded a bronze medal for a collection of Daffodils, and Mr. Anthony Waterer for a group of hardy Azaleas.

CERTIFICATED PLANTS.

Narcissus Captain Nelson (Messrs. Barr & Son and T. S. Ware).—A handsome variety of the large Trumpet section, the crown of rich golden colour and well formed, the petals lighter. Certificates were also awarded for *Gloria Mundi*, *Glory of Leyden*, and *Madame W. de Graaf* from Messrs. Barr & Son.

Primula Sieboldi, *Ware's White* (T. S. Ware).—A beautiful variety with pure white flowers of good size.

Fritillaria pallidiflora (T. S. Ware).—A form with pale yellow flowers and a few dark dots.

SCIENTIFIC COMMITTEE.

Dr. M. T. Masters in the chair. Present—Rev. C. W. Dod, Mr. Smith, Mr. Pascoe, Mr. Michael, Mr. O'Brien, Mr. Lynch, Mr. Wilson, Mr. Murray, Mr. Smee, Mr. Ridley, and Rev. G. Henslow, Hon. Sec.

Peristeria cerina and *P. guttata*.—Mr. O'Brien exhibited two flowers, one yellow the other spotted, believed to have been borne by the same plant, and characteristic of these two species. It was suggested that they might prove to be male and female respectively. Mr. Ridley undertook to examine and report upon them.

Longicorn beetle in Saccolabium caeleste.—Mr. Pascoe exhibited a live specimen taken from a stem. It proved to be *Diaxenes Taylori* from Moulmein, in the Malay Peninsula.

Leucocum tricophyllum.—Rev. C. W. Dod showed a specimen of this plant. Though figured in an early volume of "Curtis's Magazine," it appears to have been lost. It is a native of Portugal.

Daffodils, hybrids.—He also showed a number of native hybrids between *N. poeticus* and *N. pseudo-Nareissus*. They grow in abundance and great variety at an elevation of 7000 feet in the Pyrenees, since as soon as the snow disappears both these species flower simultaneously, and not separately, as in England. They are called "Bernards," in their native home.

Begonia, sp.—Mr. Ridley discovered the name of the species exhibited by Mr. Smee at the last meeting to be *B. hispida* from Brazil.

Euonymus, vars.—Dr. Masters exhibited sprays of the common green *Euonymus*, with yellowish young foliage. They were received from M. Max Cornu. The yellow tint disappears as the season advances; the cause was attributed by the Secretary to cold, as he had noticed transplanted Bluebells remained yellow-green until the temperature rose, when they suddenly became green. Mr. Murray corroborated this fact, and added that corn will sometimes become yellow again on return of cold weather.

Tulip Bulb abnormal.—Dr. Masters also showed bulbs in which one of the lowermost scales had become bent downwards, an axillary bulbil had grown downwards in conjunction with it. Mr. Dod alluded to the fact that Bluebells and Crocuses sometimes bore bulbs on dependant axes below the parent bulb; but it was somewhat difficult to account for this peculiarity.

Plant diseases.—The following communications were received from Mr. Plowright:—

Distorted Crocus Leaves.—"The Crocus leaves sent herewith present a curious distorted appearance towards their extremities that I have frequently observed at this season of the year. It usually becomes more marked later on. At first sight one would imagine it due to some mechanical injury, but this I believe not to be the case. The plants from which these specimens are taken have had their leaves similarly distorted for several years in succession. Whether it be the work of an insect or not, I should be glad to have the opinion of any member of the Committee who may be familiar with this diseased condition." This is of common occurrence, and is due to chill or other cause which prevents the leaves escaping freely from their sheaths.

Larch Disease.—"Most likely several diseases are included in the term 'Larch disease,' as one frequently sees it employed in various semi-scientific periodicals. The specimens in question were obtained last autumn near Aberdeen in one of the excursions of the Scottish Cryptogamic Society. Professor Trail pointed out to me the large number of young Larches which were thus injured. During the following week, while at Hereford, I searched in vain for specimens of this disease, nor have I been more successful with the Larches in this neighbourhood. The specimens sent herewith were living at the time they were procured, the leaves attached to them being quite green. The peculiar swellings of the affected branches being like those produced by the Podosomata on Junipers—more or less fusiform—there is no reasonable doubt but that the disease is caused by the presence of the mycelium of a fungus, *Peziza Willkommii*. The diseased condition of the branches and the structure of the fungus, &c., are well shown in R. Hartig *Lehrbuch der Baumkrankheiten*, plate xi. The specimens show the fusiform swellings of the branches and the *Peziza Willkommii* in situ. It has been asserted by those who confine their attention to the examination of herbarium species that no difference exists between *P. Willkommii* and *P. calycina*. Without doubt the perfect fungi resemble each other closely in external appearance and in spore measurements, but their life

history is distinct, the former affecting living trees, the latter dead ones. A similar case in point occurs with the two æcidia, which in this county occur upon *Ranunculus repens*, the one of which is connected with *Puccinia Magnusiana* on Reed and the other with *Uromyces poæ*. For my own part, I am quite unable to distinguish these æcidia from one another, either by their external appearance or by their spore measurements, but their life history is abundantly distinct." It was the opinion of Mr. Smith and Mr. Murray that *Peziza*, a purely superficial fungus, had nothing to do with disease, but only followed it.

Podisoma Sabinae.—"The specimen sent herewith has been produced by placing the spores of a *Ræstelia* on Hawthorn upon the Savin. It was formerly supposed that we had in Europe true *Podosomata* only answering to the three *Ræsteliae*—namely,

"*Podisoma Juniperi* = *Ræstelia lacerata* on Hawthorn.

"*Podisoma Sabinae* = *Ræstelia cancellata* on Pear.

"*Gymnosporangium Juniperi* = *Ræstelia cornuta* on Mountain Ash.

"On 7th May, 1885, I infected a Hawthorn bush with a *Podisoma* on Savin. By the 17th May peridia begun to be developed; in a month's time (June 25th) when the *Ræstelia* was in full fruit, I infected with them one of two Savin bushes. This showed the same signs of the infection being successful as I had previously observed in a Juniper on which I produced *P. juniperi*—namely, a falling off of those leaves (after their turning yellow) into which the germ tubes of the *Podisoma* Momycellial spores had entered. This was followed next year (1886) by slight enlargements on the stems, and in two years' time (1887) by the production of the perfect *Podisoma*."

Endophyllum sempervivi.—"The specimen of common House leek sent herewith was artificially infected with this fungus last year. Other species of *Sempervivum* infected at the same time did not become affected with the fungus."

A vote of thanks was given to Mr. Plowright for his communications.

PLANTS EXHIBITED.—*Cymbidium tigrinum*.—A finely grown specimen of this plant was exhibited by Messrs. Shuttleworth, Carder & Co., Clapham. It was figured in "Botanical Magazine" tab. 5457. A botanical certificate was awarded for it.

Arisæma triphyllum.—A North American Aroid, green var., was exhibited by Mr. Ridley; the usual form is more showy, having purple spathe with bars.

Dracunculus criticus, Schott.—This powerfully odoriferous Aroid from Crete was shown by Mr. Lynch, who observed that it proved to be perfectly hardy during the last two winters.

Sisyrinchium filifolium, from the Falkland Islands; *Iris lineata*, Foster, from the Caucasus; *Aretotis auriola*, *A. revoluta*, and *A. arborescens* were shown by Mr. Lynch.

NATIONAL AURICULA SOCIETY (NORTHERN SOCIETY).

THE Rev. F. D. Horner has favoured us with the following report of this Exhibition, which was, however, not written by him, and has appeared in the "Gardeners' Magazine." The Show was held in the New Town Hall, Manchester, on Friday the 29th ult. This was one of the best Shows held in Manchester at this time of the year, both for quality and quantity. The growth and general condition was far superior to the Exhibition held the preceding Tuesday at South Kensington. Considering the peculiar nature of the season in the way of cold nights and east winds, it was very surprising how the Auriculas had been able to open in anything like the condition they were staged. The Rev. F. D. Horner, who had not exhibited in Manchester for nearly ten years, was, as might be expected, the principal winner. Nearly every grower of note in the north was represented, and some from the midlands. Mr. Simonite from Sheffield will not be in bloom for another week or so, which will account for his name not being so very prominent. In the way of new flowers there were the greater part of those shown at the Southern Show. Amongst them occurred one raised by Samuel Barlow, Mrs. Arthur Potts, of the finest colour ever seen.

In the competition for six dissimilar the first prize went to the Rev. F. D. Horner, Burton-in-Lonsdale, Kirkby Lonsdale, whose collection had good quality and finish. It consisted of George Lightbody, a very fine flower, remarkably smooth in petal, and which was also awarded the premier prize for the best Auricula in the Exhibition, Dragon Fly (Horner), Heroine (Horner), F. D. Horner (Simonite), Maggie (Horner), a fine white edge and one of the best of its class; and Alexander Meiklejohn (Kaye). Mr. William Bolton, Stockton Heath, Warrington, was a close second with John Simonite (Walker), Lancashire Hero (Lancashire), Mrs. Douglas (Simonite), F. D. Horner (Simonite), James Douglas (Bolton), in fine condition; and Samuel Barlow (Bolton), also a fine grey edged flower, the first time exhibited here. Arthur Potts, Esq., Hoole Hall, Chester (Mr. John Taylor, gardener), was third with F. D. Horner (Simonite), Sapphire (Horner), Mrs. Dodwell (Woodhead), very fine; Alexander Meiklejohn (Kaye), George Lightbody (Headly), fine; and John Simonite (Walker). Mr. Henry Wilson, Halifax, was fourth with Mrs. Dodwell (Woodhead), Heroine (Horner), Acme (Read), Prince of Greens (Trail), George Lightbody (Headly), and Colonel Taylor (Leigh). Mr. R. Lord, Todmorden, fifth with George Lightbody (Headly), Conservative (Douglas), Prince of Greens (Trail), C. J. Perry, Acme (Read), and a seedling green edge. Sixth was awarded to Mr. T. Buckley, Stalybridge, for a fine lot consisting of Frank Simonite (Simonite), Pizarro (Camohell), George Lightbody, Alexander Meiklejohn, Imperator (Litton), and Acme (Read). W. Brockbank, Esq., Didsbury, was seventh; and Mrs. Kirke Penson, Ludlow, eighth.

In the class for four Auriculas, first place was again taken by the Rev. F. D. Horner with Elsie, a fine white edge in first-class condition, George Lightbody, Heroine, and F. D. Horner; Mr. Wilson second with Rachel (Woodhead), Prince of Greens, John Simonite, and Mrs. Potts, very fine; Mr. R. Lord third with Acme, Zrurette (Pohlman), G. Lightbody, and a

seedling green edge No 5; Mr. W. Boulton fourth with Goff, Horner (Horner), A. Meiklejohn, Prince of Greens, and Mr. Douglas; Mr. Buckley fifth with A. Meiklejohn, C. E. Perry, Acme, and Lovely Ann (Oliver); Mr. F. Pohlman, Halifax, sixth with Acme, Prince of Greens, George Lightbody, and Ellen Lancaster (Pohlman); A. Potts, Esq., seventh with Pizarro, Acme, F. D. Horner, and Richard Headly (Lightbody); S. Barlow, Esq., eighth with Hibernia (Barlow), a seedling grey edge, George Lightbody, Acme, and Mrs. Bentley (Barlow), a seedling self.

In the class for pairs only for those who do not exhibit in the preceding classes, Mr. John Beswick, Middleton, was first with Acme (Read) and C. J. Perry; Mr. Barlow second with George Lightbody and Mrs. Bentley, Mr. M. Partington, Middleton, third with C. J. Perry and Meiklejohn; Mr. Stelfox fourth with Beauty (Trail) and T. Turner; R. Gorton, Esq., Eccles, fifth with F. D. Horner and C. J. Perry; Mr. Nixon sixth with Prince of Greens and Negro (Mellor); Mr. Savage seventh with C. J. Perry and Conservative; Mr. R. Heys, Norden, eighth with Acme and Blue Peter (Royds). In the class for maiden growers who have not won the value of their subscription at any Show of the Society, Mr. Stelfox was first with the pair with which he won fourth in the preceding class; Mr. Nixon second also with his pair that won the sixth prize; Mr. Savage third.

Single specimens were well contested, the Rev. F. D. Horner winning premium and first prize with F. D. Horner; Mr. F. Pohlman second with New Green (Headly), and third with Prince of Greens; S. Barlow, Esq., fourth with Miller's Green (seedling); B. Simonite, Sheffield, fifth, seventh, and eighth with H. Watson, a seedling, and T. Hannaford respectively; Mr. R. Lord sixth with Seedling No. 5.

In Grey Edges Mrs. Kirke Penson won first, second, fifth, and eighth with George Lightbody, Lancashire Hero, A. Meiklejohn, George Lightbody, and C. E. Brown respectively; Miss Woodhead, Halifax, third with George Rudd; Mr. H. Wilson fourth with Rachel; Mr. W. Bolton sixth with John Morris (Meiklejohn); and Mr. R. Lord seventh with Complete (Sykes).

White Edges.—Mr. R. Lord premium with Acme; Mr. H. Wilson second with John Simonite; Miss Woodhead third and eighth with Acme and Smiling Beauty; Mr. Horner third and fifth with Miranda and Heatherbell; Mr. R. Gorton fourth with Frank Simonite; Mr. F. Pohlman sixth with Beauty (Trail); and Mr. W. Bolton seventh with Reliance (Mellor).

Sells.—Rev. F. D. Horner first with Kathleen (Horner), and second with Amy (Horner); Mr. H. Wilson first with Mrs. Douglas; Mr. S. Barlow third with seedling; Mr. F. Pohlman fifth with Black Bes; Mr. W. Bolton fourth with a seedling, and eighth with a seedling; Mr. Stelfox sixth with Lord Lorne; and Mrs. Kirke Penson seventh with a seedling.

Alpine Auriculas, four dissimilar (shaded), R. Gorton, Esq., Eccles, first with Queen Victoria (the premier Alpine as awarded by the Judges), Ladylove, John Leech, and Unique; S. Barlow, Esq., second with three seedlings and Diadem; W. Brockbank, Esq., third with Diadem, Mrs. Dodwell, Conspicua, and Mrs. Ball; Mr. E. Shaw, Moston, fourth with Diadem, Sensation, Mrs. Ball, and John Leech; Mr. R. Heys fifth with seedling, Diadem, Mrs. Llewelyn, and Mrs. Ball; sixth, Mr. Stelfox, with Bang Up, Sarnia, Diadem, and Brilliant; Mr. F. Pohlman seventh with four seedlings; and Mr. Buckley eighth with Diadem, Brilliant, Dazzle, and George Lightbody.

Single specimen Alpines, shaded edge, yellow centre, W. Brockbank, Esq., first with seedling; Mr. F. Pohlman first, second, and third with seedlings; Mr. R. Gorton fourth with Unique; S. Barlow, Esq., fifth with Susie Matthews; and Mr. W. Brockbank sixth and seventh with Mrs. Ball and Amelia Hardwidge.

Single specimen Alpines, shaded and white centre, Mr. R. Gorton first and second with Muirer, Queen Victoria, and Beatrice respectively; Mr. E. Shaw third with Lord Elcho; Mr. F. Pohlman fourth and sixth with seedlings; and Mr. W. Brockbank fifth with Conspicua.

Polyanthus, gold laced, black grounds, three dissimilar, Mr. Walkden, Sale, first with Starling, Cheshire Favourite (very fine), and Exile; S. Barlow, Esq., second with Regent (Cox), Cheshire Favourite, and Exile; Mr. W. Brockbank third with Favourite Exile, and seedling; Mr. W. Taylor fourth with Hero, Favourite, and Exile; Mr. J. Thornley, Middleton, fifth with Lancashire Hero, Favourite, and Exile; and Mr. Hilton, Middleton, sixth with Cheshire Favourite, Hero, and Exile.

Polyanthus, gold laced, red grounds, three dissimilar, S. Barlow, Esq., first with Sunrise, George IV., and Regent (Cox); Mr. W. Brockbank, second with Lancer, seedling, and George IV.; Mr. J. Thornley, third with Lancashire Hero, George IV., and Sydney Smith; Mr. Helton fourth with Lancer, Regent, and President; Mr. W. Taylor fifth with Lancer, Regent, and George IV.

Single Polyanthus, black grounds, Mr. Walkden, Sale, first for Cheshire Favourite; second Mr. W. Taylor with Regent; third Mr. T. Oldham, Middleton, with seedling; fourth Mr. W. Taylor with Exile; fifth and sixth Mr. S. Brockbank, for Lancashire Hero and seedling; Mr. S. Barlow seventh with John Bright.

Single Polyanthus, red grounds, premium and fifth to Mr. W. Brockbank for George IV. and a seedling; first, fourth, and seventh, Mr. J. Thornley, with George IV., William IV., and Lancer; Mr. G. Geldie second with Sydney Smith; Mr. Taylor third with Cox's Regent; and Mr. S. Barlow with Sunrise, sixth.

Fancy Auriculas were shown in two lots, both well grown, S. Barlow, Esq., first, and W. Bolton second. Fancy Polyanthus were well represented, S. Barlow, Esq., being first, Mr. W. Brockbank second, and Mr. Walkden third. Fancy Primroses were also well shown, and the prizes awarded as in fancy Polyanthus.

In connection with this Show a special schedule was formed from out of a Jubilee fund. For the prizes there was a severe competition. Twelve Auriculas (Alpines excluded), first prize was awarded to the Rev. F. D. Horner for Lightbody, Laura (Horner), F. D. Horner, Black Bes, Fairy Ring (Horner), seedling, Concinna, Mrs. Douglas, Snowdrift, and Heroine. Second, A. Potts, Esq., with Confidence, Sapphire, Acme, Conservative, John Simonite, Frank Simonite, Lancashire Hero, Prince of Greens, Trail's Beauty, F. D. Horner, and Richard Headly. W. Bolton was third with Mrs. Douglas, F. D. Horner, Little Dorrit (Horner), G. Horner, Conservative, Prince of Greens, George Lightbody, Reliance, F. D. Horner, and Ajax.

For twelve Alpines, shaded or unshaded, R. Gorton, Esq., was first; W. E. Shaw second; W. Brockbank, Esq., third. For a collection of twelve

varieties of Polyanthus, gold laced, red and black, Mr. Taylor was first; Mr. Walkden second; and W. Brockbank, Esq., third. Twenty-four single fancy Polyanthus and Primroses, S. Barlow, Esq., was first, and W. Brockbank second.

Twelve double and single Primroses and Polyanthus, Mr. S. Walkden first; W. Brockbank, Esq., second; and S. Barlow, Esq., third. Twelve *Primula Sieboldi*, W. Brockbank, Esq., first; S. Barlow, Esq., second. Six *Primulas*, distinct species, S. Barlow, Esq., first; Mr. T. Walkden second. The whole of the above collections in the Jubilee schedule were in first-class condition, the competition being exceptionally keen.

In connection with the above Show there was a grand display of plants, including a fine collection of Orchids, several varieties of stove plants belonging to Joseph Broome, Esq., Didsbury, for which the Manchester Botanical Council awarded a gold medal. This collection entirely filled one end of the room. Messrs. James Dickson & Sons, Newton Nurseries, exhibited a collection of Daffodils, amongst which occurred a dozen splendid sprays of Sir Watkin and representatives of the Leeds and Brierley sections. Thus it may be recorded that Manchester leads the way in the horticultural recognition of the Jubilee.

THE VAGARIES OF STOCKDOVES.

THIS is the time of year that I especially like—no, love—to watch the habits of what Mr. W. Swainsland calls the “Familiar Wild Birds.” As a title to a book, and to his book in particular, it is a misnomer, because if birds are familiar they cannot be wild; also his pretty volumes contain several birds that are by no means familiar or common to be met with in England nowadays. But just at this time, for this month, many wild birds are familiar. For why? “Love is Lord of all,” and now of their little hearts especially. They are thinking of courtship and marriage, of billing and cooing, of eggs, and nests, and nestlings. Therefore their fear of man for the time ceases; they do not notice him or even his gun, if he is cruel enough to carry one; and they don’t even notice the brutal birds’-nesting, stone-throwing schoolboy. No, Love is lord of all, and fear is gone; food is abundant, one passion has driven away all others, and fear has given place to love. The birds have become so familiar that they are now easier watched. Now I keep a binocular open and ready on my window table, and when a new bird comes in sight up goes my binocular, and I watch him. Reader, art thou a lover of birds? Remember in your rambles good tender-hearted Frank Buckland’s advice, “Leave your gun at home, but take your binocular with you.” Watch, don’t kill, don’t even alarm, and your virtue will bring its own reward. You will see much more than others, many a tint, many a beauty you will see which others will fail to recognise. Then, that cock chaffinch, now glorious in his courting costume, his very smartest dress—notice the plum bloom on the dandy’s beak; your eyes would not show it so well as my glass. Then there is that neat harmless little bird the hedge sparrow, which is killed and robbed of his eggs by the ignorant, because he is mis-called a sparrow, and unfortunately hedge accoutre never can become his common name.

Well, now to come to stockdoves. These birds become this month most wonderfully tame and familiar. For the last three years a pair have each spring taken possession of a convenient south-aspected hole in the trunk of the old Elm tree on my lawn. In March they come and look, and hover about, they love that tree and that convenient warm hole in the trunk. They don’t mind me in the least. Now, stockdoves are by no means numerous; we never have more than two pairs in the park near. This pair of mine have had a sad history, an annual disappointment. The first year they quietly nested and successfully hatched a pair, but a bird boy at the farm beneath, so I think, watched them as well as I did, and he watched to steal. They were taken and their coos became more mournful and then ceased. Last year the birds came again, they seem unable to profit by experience. They took possession of the sunny hole and laid, but jackdaws abound here, and an old grey-pated daw, very old and cunning, had set his heart on this sunny pleasant placed hole in the Elm, and turned out the rightful tenants. What could a dove’s beak do against old grey-pate’s black dagger of a bill? Now I saw, and thought that a case of injustice and unfair possession, and as the jackdaws turned out the stockdoves so I turned out the jackdaws. Silence again fell around that nest hole, for all the birds, of course, departed.

This year came, this March came, and again came the persevering stockdoves. I was half sorry, for I knew their fate, but imprudent birds, like imprudent people, will not learn by experience. I think that Lord Brougham was only half right when he said, “Fools learn by experience, wise men by observation.” For fools never learn wisdom, they go on throwing whales to catch sprats, until they have no more whales to throw, and their pockets are empty and turned inside out, and they cannot see why their pockets should be in such a forlorn condition. No, fools do not learn by experience, because they are fools. So it is with my poor foolish stockdoves, that cannot learn by either observation or experience. It was therefore with unfeigned regret that I saw the birds come again this year; but my poor stockdoves had another and worse experience before them. The two came and another. The intruder cooed and showed off his charms, his ruby neck and glittering eyes and spreading tail. Then came fierce fights. On the same branch the two birds sat and fought—wing to wing combats—beaks freely used, and when one got the worst of it away he flew, and the fight was renewed in the air. One tried to get above the other; one flew near enough to the other to buffet him with his wing; and when one was the conqueror for the time he returned to the Elm, and a miserable worn-out ruffled object he looked. Meanwhile what of the hen? She sat calmly by, meek and

mild, as if butter would not melt in her mouth, and I am afraid ready to bestow herself with equal pleasure upon whichever admirer proved the conqueror, for she took no part and showed no partiality for either combatant.

This went on for two days or more, and I never remember to have seen such vagaries in stockdoves. With many birds, even scarce varieties, if one of a pair is shot, another soon is seen. This is noticed with the hawk tribe particularly. Stockdoves are not common, but still, hardly to be reckoned as uncommon.

All the three birds have disappeared. I hope the rightful pair have gone where Lothario cannot find them, and they will have a happy unmolested nesting time.—WILTSHIRE RECTOR.

FOOD REFORM AND FRUIT GROWERS.

By the invitation of Prof. Mayor, M.A., of St. John’s, Cambridge, and of the Vegetarian Society a vegetarian dinner followed by a Conference was held at Messrs. Spiers & Pond’s “Druval Restaurant, on Tuesday, May 3rd. About 100 guests sat down to the repast. Sir George Campbell, M.P. (K.C.S.I., D.C.L.), presided, and he was supported by Dr. B. W. Richardson, F.R.S., Sir Henry Peck, Sir Henry de Bathe, Sir W. Stirling, Major Craigie, Messrs. Albert Bathe, A. F. Hills, Geo. Offer, and several members of the Central Chamber of Agriculture.

The Chairman said he was not a full pledged vegetarian himself, but an inquirer, wherefore he could not go so far as some of the member of the Society, for, in his opinion the animals now being eaten by the unregenerate non-vegetarians would never have lived at all if they had not lived to be eaten (laughter). He believed, however, that the people of these islands ate a good deal too much meat (hear, hear), and its quantity should be greatly reduced. The object of the Conference was not that they should put forward view altogether in the abstract, but have some definite ideas respecting the methods by which they might attain their ends. One of these methods was, he thought, by the encouragement of small holdings. They had heard a great deal lately about the allotment question. He was not sure whether an allotment meant a small farm or a large garden, but it did not appear that the cultivation of grain was likely to be profitable to the small cultivator. It was rather by garden cultivation and the production of fruit that an improvement might be hoped for in the masses of the people. (Hear, hear.)

Prof. J. E. B. Mayor, M.A., said they wanted the country to be self-supporting. When Malthus lived, although he saw danger in the method of life then in fashion, the circumstances were really much better than they are at the present day. Fifty years ago farmers lived almost entirely upon what they produced. Now all that was changed in England, but in France the farmers lived to a large extent upon what they grew. In Tottenham Court Road recently twelve farmers had united together, and opened a shop to sell their own produce. That was a condition of things they wished to see multiplied by the thousand. Then, again, people took fruit by fits and starts. If it was bought as regularly as fresh meat the market would soon regulate itself. The American economist, Carey, fifty years ago laid down the maxim that if the demand for vegetable products is increased the supply increases also, and the price comes down; whereas if the demand for animal food is increased the supply diminishes and the price goes up. The vegetarians, he believed, had the future with them. (Cheers.)

Dr. B. W. Richardson, F.R.S., who on rising was received with cheers, said he was not himself practically a vegetarian, and that statement might perhaps qualify some things he would have to say. He took, however, far less animal food, and in fact less food altogether, than he did years ago. Taking the question of vegetarianism in its widest sense it had two sides to it. If they examined the digestive apparatus of man, and compared it respectively with those of vegetable-eating and flesh-eating animals they would find that it more nearly resembled the former than the latter, that the balance of ideas was in favour of regarding man as a vegetable feeder. There were many beautiful attractions to be found in the vegetarian diet. The dinner they had just enjoyed could not have been better and more agreeable. (Hear, hear.) Then they must consider the second part of the question, whether, after a time, it would not be better to give up animal food altogether and take to the vegetarian diet. Nothing could be more repulsive to the mind of man than what took place in slaughter-houses. (Hear, hear.) He was president of a society that was trying to establish model slaughter-houses, one of which had just been built in Croydon; and they were also trying to introduce a system of painless killing of animals. But he was afraid that before perfecting that system the vegetarians would do away with the necessity of killing at all. (Hear, hear.) Science had taught them the exact kind of food necessary for the proper nourishment of the human frame, and with the lessons of vegetarianism and with science the feeding of man upon food that never had been alive would be the conquest of man over nature. (Loud cheers.)


Mr. J. C. Buckmaster was not overmuch concerned with the question whether meat should be eaten or not; but people would be better off if they ate less meat. (Hear, hear.) Especially among the working classes was instruction in food selection necessary. White bread was very deficient of valuable phosphates and gluten as contained in wheat. Vegetarian diet if more generally adopted would greatly reduce the consumption of spirits and beer. (Hear, hear.)

Major Craigie proposed a vote of thanks, on behalf of the guests, to the Society for its hospitality and entertainment.

Mr. F. Hills, in replying, said the Society was anxious to let their guests have a sample of what vegetarianism practically is, and had called them together to consider whether vegetarianism was not feasible. He considered giving up of animal food was the surest cure for drunkenness, for the vegetarian diet took away the appetite for drink. (Cheers.) Their motive was a worthy one, for it was to improve the habits and condition of the people.

Sir H. de Bathe wished to thank the Society for inviting him to a dinner which he had enjoyed very much.

Mr. Manning seconded the vote, to which the Chairman replied.



WORK FOR THE WEEK.

FRUIT FORCING.

MELONS.—Success in Melon cultivation depends upon a firm soil of a rather strong adhesive character, but not devoid of grit. When the soil is light, loose, and rich the shoots are long-jointed, the leaves thin and flabby, not enduring sun; the fruit then does not set well, and those that do are light in weight for their size and very indifferent in flavour. It is necessary that the shoots be trained thinly to prevent crowding. Keep the atmosphere dry and well ventilated when setting, being careful not to allow one fruit to take the lead upon a plant, watering well when the fruit is swelling, and keeping the soil dry when ripening. Do not spare the knife after the fruit has commenced swelling freely, keeping the principal leaves fully exposed to light and air. Attend to setting the blossoms in bright weather, nipping out the points of the shoots one joint beyond the fruit. Fruits becoming heavy, and in the case of plants on trellises, will require supports. Tables of half-inch deal, about 6 inches square, with a hole bored at each corner, are useful, two pieces of string being passed through the holes from the top, coming underneath the table, and then passing through again to the top, being looped up to the trellis to relieve the Vine of its weight. Attend to stopping the laterals after the fruits are swelling, maintaining a good moisture by syringing the walls as well as the foliage at about 3.30 P.M., damping the floor several times in hot weather. Water or liquid manure will be required about twice a week. The night temperature should be maintained at 70°, 75° by day from fire heat, and 85° to 90° with sun. Ventilate freely, but avoid admitting too much air at a time with a view to reducing the temperature, but commence at 75° and increase or diminish it gradually according to external influences. When the fruit is full-sized and advanced for ripening gradually reduce the supply of water at the roots, but not so as to cause the foliage to flag, and afford a circulation of warm rather dry air when ripening, which improves the flavour considerably. The temperature should be kept to 70° or 75° artificially, and 80° or 90° with sun heat. Cut the fruits before they are ripe, keeping them in a fruit room for two or three days before sending them to table. Cracked fruits are produced by a close and moist atmosphere, with too much moisture at the roots. If any fruit show a tendency to crack cut the shoots about halfway through with a knife a few inches below the fruit, and diminish the supply of water at the roots and in the atmosphere. Plants swelling their fruits should have every encouragement, syringing freely in hot weather at closing time; and besides damping the floors whenever they become dry, sprinkle them in the evening with liquid manure or guano water, about 1 lb. to 20 gallons of water. Shade only to prevent flagging, ventilate freely in favourable weather, commencing from 75° to 80°, increasing or decreasing it as necessary, maintaining a day temperature of 80° to 85° or 90° with sun heat, closing between 80° and 85°, and if an advance be made after closing to 90° or 95° or more, it will increase the size of the fruit and lessen the necessity for fire heat at night, but it must be accompanied by plenty of atmospheric moisture. If thrips appear fumigate moderately on two, or three consecutive evenings, taking care to have the foliage dry, and for red spider dress the hot-water pipes with flowers of sulphur.

Train out the growths in pits and frames. Still maintain a good bottom and top heat by linings, and employ thick night coverings, as the nights are yet cold. Plants swelling off the fruit should be well earthed, the laterals thinned out, and the fruits raised on pieces of slate on inverted flower pots. Sow seed for planting in pits and frames after they become cleared of bedding plants, potting off the young growth as required.

CUCUMBERS.—A clean growth is of the utmost importance in the successful cultivation of fruits, particularly Cucumbers. If aphides appear fumigate twice or thrice on consecutive evenings, having the foliage dry but the floors well damped, which last is more especially necessary when there is "white fly" to contend with. Red spider is almost sure to appear; remove the worst infested leaves, and keep the atmosphere charged with ammonia vapour by damping the floors in the evening with liquid manure or guano water, supplying the plants at the roots with the same about twice a week. The hot-water pipes may also be coated moderately with sulphur. Be careful that the plants do not suffer through insufficient supplies of water, always applying it at the same temperature as that of the bed. Plants in bearing all the winter will now be showing signs of exhaustion, and had better be removed and their places filled with young plants without delay. Assist young plants which show signs of weakness by removing the staminate blossoms and the first fruits, stopping at every third or fourth joint, removing all weakly and superfluous growths. Shading will be necessary for an hour or two in the middle of the day when the sun is hot, especially houses facing south, but shade only to prevent flagging. Houses with the roof lights facing east or west will not require shading. Little or no fire heat will be required by day, shutting the valves at about 8 A.M., and opening them again at about 4 P.M., or later, keeping a good moisture by damping the floors, &c.

Sow seed for raising plants to occupy pits and frames, a fair bottom

heat being first secured by using the less decomposed material from Seakale, Vine borders, or exhausted hotbeds, which with about a fourth of fresh material will afford all the bottom heat now required. The days lately though somewhat bright have been cold, and the nights very cold, in which case close pits and frames as early in the afternoon as is safe, running up to 90° or more, and employ good night coverings. See that a good bottom heat is obtained by duly renewing the linings.

CHERRY HOUSE.—Cherries ripening at this time are always most welcome at dessert. The fruit must be kept dry, but the house must nevertheless have atmospheric moisture furnished by keeping the surface of the borders moist by damping with the syringe, air being admitted constantly, or condensation taking place will seriously affect the fruit, not only causing it to crack but impairing its quality. Damping the border is calculated to mislead as regards its condition, which at this stage must be quite moist; therefore, if necessary, a thorough supply of water must be afforded without delay. Tie in the shoots as they lengthen, and stop those not required for training in at about the fifth leaf. Black aphides must be kept under by dipping the shoots or leaves in tobacco water. Ventilate freely on all favourable occasions, and when the external conditions are unfavourable recourse must be had to the heating apparatus to ensure a circulation of warm dry air. Netting will be necessary over the ventilators to prevent the birds attacking the Cherries. Trees in pots should be well supplied with water.

PLANT HOUSES.

Mignonette.—If well-developed standards or pyramids trained upon trellises are desired in early autumn no time should be lost in sowing seed of Miles' Hybrid Spiral or Parsons' White. Pots 3 inches in diameter must be carefully drained and filled with a compost consisting of two parts good loam and one of leaf mould, with a little sand added. Sow a few seeds in the centre of each pot, and lightly cover with fine soil. Place the pots in a temperature of 60° until germination has taken place. As soon as the most promising plant can be distinguished select it and pull the other out, except in the case of those required for pyramids, when four plants may be left. Grow the young plants under moist genial conditions until they are 3 inches high, when their first pots will be full of roots, and they may be transferred into 5 and 6-inch pots. When established in these gradually dispense with artificial heat, and grow the plants under cool but not too airy treatment. Stand the pots upon some moisture-holding material, and grow the plants as rapidly as consistent with insuring strength and sturdiness. Avoid any check, either from remaining in small pots too long, or rooting through into the material upon which they are placed. Either of these causes will quickly bring about a woody condition of the plants, and if this takes place in their early stages they never do any good afterwards. For flowering during the spring sow seed at the end of the month.

Calceolarias.—Some of the latest plants that were wintered in pans or small pots, and now well established in 3-inch pots, will prove very useful for decoration if transferred at once into pots 2 inches larger. These should be grown under cool treatment in a cold frame, with the pots standing on ashes or other moisture-holding material. Feed those throwing up their flower spike with clear soot water every time they need supplies at their roots. Watch for aphides, which, if allowed to establish themselves upon the plants and be neglected for a few days, will quickly arrest their growth. On its first appearance fumigate lightly with tobacco, only be careful that the foliage is perfectly dry.

Spiraea japonica.—There is no difficulty in having this plant in good condition until the end of June, or even into the following month, provided steps are taken at once for retarding those that have been kept back as much as possible. For some years we have kept a batch of plants to flower during the early part of July after those in outside borders were over. In the attainment of this object the plants were plunged outside all winter with the crowns covered with ashes. At this period of the year they were removed and plunged behind a north wall. For some time protection will be needed, for the foliage is easily injured by slight frosts. If this is given for a few weeks, the plants kept well watered, and are afforded room for development, they will be found very serviceable either for cutting or various forms of decoration.

Azaleas.—As these plants cease flowering remove the seed pods and wash them in weak tobacco water, to which has been added about half an ounce of soft soap to each gallon of the solution, and a piece of washing soda the size of a cob nut to each four gallons of the mixture. This will destroy any thrips or eggs that may be deposited upon the plants, which, if not destroyed before introducing them into heat, the insects will spread rapidly and soon make sad havoc with their foliage. We have invariably found that if these plants are well washed after flowering, and then liberally and judiciously syringed during the season of growth, a further washing is not necessary before autumn. Encourage all plants that have flowered to make their growth by subjecting them to close, moist, warm treatment where they are shaded from strong sunshine. The night temperature may range about 60°, and no air need be admitted during the day for some time to come, provided the roof is shaded with tiffany. Any plants that need repotting should be done at once, and the remainder given an application of artificial manure to the surface of the soil.

Hardy Varieties.—Those that have been forced in pots may now be planted out if they have been thoroughly hardened for the purpose. To plant them out directly they have flowered without judicious preparation means a very severe check to the plants, especially those that have a good percentage of new growth. They are generally severely cut, and do not again start into growth during the season; but with care in hardening them many of the plants will set their buds, and do

for forcing again next season. Although forcing every alternate year only is advised, the future well-being of the plants depend in a very large measure upon the treatment accorded them after flowering.

Deutzia gracilis.—As these cease flowering encourage them after they are cut back to make a strong luxuriant growth indoors. The late as well as the early plants will do well in late Peach houses or vineries where the roof is not yet shaded with foliage. Top-dress with rich material if needed, and feed with weak stimulants all that are in pots crammed with roots.

THE FLOWER GARDEN AND PLEASURE GROUNDS.

Commencement of Bedding-out.—There are several hardy or nearly hardy plants that may now be transferred to their summer quarters, this both liberating pots, boxes, and frames, and also lessening the amount of work to be performed in June. The beds being unoccupied with spring-flowering plants, these may be properly levelled, and many of them edged with *Echeveria secunda glauca*, *Sempervivum californicum*, *Cerastium tomentosum*, *Alyssum variegatum*, *Antennaria tomentosa*, *Arabis alpina variegata*, *Arabis lucida variegata*, Variegated Thyme, *Pyrethrum aureum*, *Dactylis glomerata*, *Festuca glauca*, *Stachys lanata*, and *Violas*. When the *Echeverias* are largely employed these should be raised well above the level of the turf and faced outwards. They ought to be planted very evenly, though no kind of puddle or clay mixture is necessary to keep them in position. They are best planted with a dibble, nothing in the shape of a ball being needed. If they have been previously grown in a frame and not well exposed to the sunshine it is advisable to lightly protect them for a time with branches of evergreens, this also preserving them from frost. Next these, and about 3 inches from them, may be dibbled a line of Golden *Pyrethrums*, these being very effective together, or later on dwarf *Lobelias*, *Alternantheras*, neat plants of Golden Thyme or other dwarf plants may be substituted. A neat edging may be formed with the *Cerastium*, old plants being pulled to pieces and planted rather deeply and neatly. The *Antennaria* divides very readily and makes a very neat edging, or may be used for filling in the groundwork of a carpet bed design; small pieces do better than larger bunches. Every little piece of *Sedum glaucum* will grow, and if disposed about 2 inches apart each way will soon cover the ground. This and the green *Sedum lydium* are also useful for the groundwork of carpet beds. For a similar purpose *Mentha gibraltaria*, *Herniaria glabra* and its golden sport, *Pyrethrum Tchihatchewi*, and *Veronica repens* are available, and all may be freely divided and dibbled in at the present time. The *Arabises* should also be divided and replanted, and are effective for edging or carpet beds. For larger beds the two Grasses *Dactylis glomerata* and *Festuca glauca* are suitable edging, and these ought to be split up and replanted, and similar treatment should be given to the old *Stachys lanata*. Young plants of *Violas* wintered with slight protection are preferable for summer bedding, but failing these the old plants may be freely split up. It must be done at once, and the divisions rather deeply planted in well manured soil, as when planted on poor ground they fail badly in hot weather. They are most effective when planted in mixture with either silver, bronze, or golden variegated *Pelargoniums* and edged with a broad band of *Iresine Herbstii* or *Lindeni*.

Late Bedding-out.—Owing to the lateness of the various spring-flowering plants now in the beds, much of the summer bedding-out will in many cases be necessarily late. This being so, extra pains must be taken to keep the plants in a growing state, or otherwise they will after planting be much slower in arriving at a healthy or ornamental state. Zonal *Pelargoniums* will now be worked out into the open, some provision being made to protect them from late frosts. A little liquid manure will not be thrown away on these, as well as *Lobelias*, *Verbenas*, *Calceolarias*, and other plants in pots. We prefer to put out the *Calceolarias* on shallow beds of decayed manure placed on a hard bottom, a layer of soil being placed on the surface. Thus treated they do not get starved, and may be readily transplanted with large balls of soil and roots in the hottest weather. *Lobelias* and *Ageratums* are also best somewhat similarly treated. Crowded in pans and boxes they soon spoil each other, whereas if bedded-out in any kind of rough frames they soon become fine strong plants. If Stocks, Asters, Marigolds, Zinnias, and other annuals are crowded and cannot be planted out by the end of May, these also may well be given more room in temporary frames or on warm borders, where they can be slightly protected. Many of the sub-tropical plants, notably *Solanums*, *Cannas*, *Ricinus*, *Amaranthuses*, *Tobacco*, *Wigandias*, and *Acacias*, if long kept in small pots soon receive a severe check; and to avoid this and its consequent disfigurement a number of them, or as many as required, ought to be shifted into 6-inch pots. Any good loamy soil will suit them, and they ought to be kept growing in a cool house or frame. On no account should the more delicate *Iresines*, *Coleuses*, and *Alternantheras* be stood out before the end of the month, as even if protected from frost, cold heavy rains will yet greatly injure them. Once badly crippled they are a very long time in recovering.

Late Propagating.—Those who fear they have an insufficiency of bedding plants may yet propagate a quantity, and sometimes these late struck plants do better than others raised much earlier. After the *Verbenas* are placed in cold frames they frequently form much healthier growth, and we have frequently taken off hundreds of tops early in May and struck them. For this work a mild hotbed is best, over this being placed a thin layer of fine sandy soil. Little or no trimming is necessary, and the cuttings being dibbled in about 3 inches apart each way, watered, kept close, and shaded from bright sunshine, will strike

in a week. Early in June, if previously topped, they will have become strong plants, and after being duly hardened off may be transplanted direct to the beds. *Iresines* and *Coleuses* we invariably strike late, and in the same manner as advised in the case of *Verbenas*, and thousands of strong *Alternantheras* are similarly obtained. The latter are usually cut off the old plants in a wholesale manner, and dibbled out on the slight hotbed without any time being wasted in trimming them. *Marigolds*, *Tagetes*, *Ricinus*, variegated Maize, and Sunflowers may yet be raised from seed, late plants frequently surpassing those raised early.

THE BEE-KEEPER.

PRACTICAL BEE-KEEPING.

No. 10.

AN expert manipulator is not necessarily a great bee-master, but a great bee-master must necessarily be an expert manipulator. To be able to manipulate skillfully is always a great assistance. It is only when this power is abused that the mischief is caused, evidence of which may be so often seen in most localities. To be an expert manipulator a man must have confidence in himself. If he has that confidence he will easily learn to perform all the operations which necessity demands. If he does not possess that quality he will have to acquire it in addition to learning the mere mechanical part of manipulation. How many possessors of a stock of bees have been deterred from becoming bee-keepers by the pain of a sting? Most of us can remember in our earlier experience a time when our enthusiasm was somewhat damped by a judicious use of the sting on the part of our favourites! I remember very well receiving my first sting; the pain was intense and the swelling great, and for a time the truth of a saying which I had perhaps not hitherto realised was forcibly brought home to me—"Never a Rose without a thorn." Some bee-keepers decry the use of veil and gloves. I advise all who are for the first time in any way interfering with bees to put on both veil and gloves, and the veil must never be dispensed with in difficult manipulations, even when great skill has been acquired. Gloves may be cast on one side after the operator feels that he is able to dispense with their services.

In the home apiary a wire veil is most useful. In windy weather the light thin gauzy veils are often blown to the face and neck, and give an angry bee just the opportunity it requires. Mr. Cheshire in "Bees and Bee-keeping" relates an experiment he made with "methyl salicylate" at Rottingdean, which seems to be conclusive evidence that a few drops of this methyl, or as it is most commonly called "oil of Winter Green," rubbed over the hands, is of itself an absolute protection from stings, even when bees are in their worst moods and have not been prepared by the use of smoke or any of the other usual agents for manipulation. This methyl costs about 1s. an oz., and may be tried by all who desire in this way to secure—judging from this experiment—a practical immunity from stings. In any case, however, whether we use gloves or this oil or nothing, the greatest care must be taken for the sake of the bees not to do anything to enrage them. It is a very common fault to give too much smoke; caution is requisite whatever the agent used may be, because the more that we smoke or otherwise frighten the bees the more they are injured and the greater the loss of time caused and consequent loss of honey and profit. A very little smoke is necessary.

Again, a quilt must never be snatched from a hive in a hurried manner, but each frame must be uncovered

singly at the same time, a puff of smoke being sent down between the frame so uncovered and the adjoining comb until all the frames are exposed, if it is necessary to have the whole surface exposed at once. If only a few frames are to be removed from the sides such frames alone should be uncovered. All movements must be slow and steady; no hurried gestures should be made over a hive of bees. A little more smoke must be given occasionally if the manipulation is prolonged and the bees begin to recover from the effects of the smoke first given. Carbolic acid is often substituted for smoke. For clearing supers it is, as "A Lanarkshire Bee-keeper" has pointed out, most successful, and those who have once tried it will never again resort to the use of smoke. It is cleanly, speedy in its effects, and the vapour soon passes away and leaves the hive untainted. It is often said that when we are going to manipulate a hive a puff of smoke should be injected at the entrance of the hive. To this I object. No smoke is necessary at the entrance; indeed, it is a positive injury, because it sends the bees crowding up to the top of the combs, and we have simply to undo the effects of our unwise "smoking" by sending them down again.

Careless jolting and jarring of hives will rouse bees to fury. If by chance bees do become thoroughly enraged it shows a wise discretion to at once close up the hive and leave them until they have recovered, when another attempt must be made. A few years ago I had a frame hive with six tiers of sections in it, 126 one-pound sections in all. By accident, owing to the giving way of a small strip of wood when lifting up three racks together, some of the sections fell out of the racks on to the sections left on the hive. The jar was great and the fury of the bees wonderful. They rose in clouds, and had I not taken the precaution, as usual, to put on a veil before interfering with the sections it might have been a serious matter. The accident was easily remedied. A skep may be manipulated with ease. Although it is impossible to inspect each comb so thoroughly as in a hive with frames, it is quite possible to gain a good idea of the state of the stock, and to perform such manipulations as may be necessary from time to time by injecting at the entrance a few puffs of smoke, then gently tapping the top and sides of the hive and waiting until the bees have had time to gorge, when the hive may be lifted, inverted, and the combs examined. When a hive has been very securely fastened to its board it is well when there is no need for haste to loosen it an hour or so before actually interfering with the bees, because unless great care is taken the hive will be considerably jarred in passing a knife between the hive and board, and the bees may become angry. This delay is never necessary; it may, however, occasionally be politic.

New combs are very tender, and therefore great care is necessary in handling them. It is at no time safe to turn up a skep containing new combs, and still greater is the danger of doing so when the weather is hot and sultry. Combs built from sugar are more brittle than those elaborated from honey. Frames of new comb may be inspected with care, but no attempt should be made to invert a skep until the comb has become less fragile and the weather cooler. All necessary operations may be performed by the assistance of a man who will lift up the skep perpendicularly while the bee-keeper examines its state, inserts his queen cell, or performs such other operation as he may desire to carry out. Sleps must at all times be inverted the way that the combs were, otherwise the weight of the combs themselves may cause them to

break from the top and sides of the hive. This is a point to which particular attention must be paid.

In concluding, it may be well to warn all who desire to become practical bee-keepers that a stock or swarm should never be interfered with unless there is some necessity for such interference. Hives which are never manipulated at all give the best results. At the present time I have two frame hives which have never had a single frame removed for the past three years, and the average yield of honey has been over eighty 1 lb. sections each every season. Beyond occasional feeding, closing and narrowing of entrances, and adding driven bees, no manipulation has ever been performed with these stocks, and this year they are again in the grandest condition, and will, unless some accident happens to them or the season is bad, no doubt give a large yield of honey. I do not wish anyone to think that I advise frames to be so entirely left alone as in these cases, because the frames become so firmly fixed that when necessity demands their removal it is most difficult to loosen them. What I do wish to impress upon all is that frame hives give a bee-keeper absolute power over his bees, but that the less this power is exercised the better it will be both for the bees and their master. Long periods often pass by without the slightest interference being necessary, and again in a short time several manipulations may be required.

If a stock must be examined let it be examined without delay; if a stock must be manipulated let it be manipulated without hesitation; but a stock must never be interfered with unless there is good cause to believe that mischief can be repaired or some benefit arise to the bee-keeper or the stock from such manipulation.

It may be urged that it is not very easy to say when manipulation is really necessary, and this is strictly true, but experience will teach everyone who pays attention to the wants of his stocks when his active interference is required. Of all the manipulations which stocks have to endure at the hands of an advanced bee-keeper but very few are really necessary. The rest are absolutely injurious to the bees, and consequently an actual loss to their owner. A little skill well applied gives better results than the greatest skill badly used.—FELIX.

APICULTURAL OBSERVATIONS

OWING to a number of circumstances, I find that my stock of observations are accumulating much faster than I have communicated them to the public. The fault is hardly mine, for if I have advanced a fact I have been assailed by ignorance and prejudice, which has resulted in controversy, so that now I hardly know where to begin. In this district bees have wintered very well. At Easter bar-frame hives had from three to seven frames of brood, mostly four and five with young bees hatching. Straw sleps were full of bees, and as the trees promise abundance of bloom I anticipate a busy season. The losses have been in every instance through queenlessness, and they have been very large, averaging about three out of every twelve, so I will begin with the

CAUSES OF QUEENLESSNESS.

Judging from the accounts in my neighbourhood, as well as my own experience, I should think the loss of queens the past winter has been greater than ever before; my loss alone being three queens out of fifteen, two of them being young ones. Some, if not all, are at a loss to account for the cause, therefore I will give my ideas on the matter. Last spring, on a warm Sunday, I was sitting on a stool in the apiary watching the bees flying merrily after a long confinement, when my attention was drawn to a stock from which the bees were coming out pell mell, and before half a minute every bee had left it. I at once opened the hive to see the cause, but could find none. There was brood in all stages and plenty of eggs. Where the bees went I know not, further than they did not settle anywhere, for each one went a way of its own. Knowing the queen could not fly, being in laying condition, I searched the ground and soon found her crawling about. In about ten or fifteen minutes the

bees began to come back, and they came from all directions. After a good number had entered the hive I let the queen run in also, and the stock continued to prosper. Had I not been near this stock would have proved queenless, as she could not have reached the hive without flying, which she was too heavy to do. I have several times in my younger days seen bees come out in a similar manner, and the stock always became extinct after. In the cases of the three I have lost this spring, every one was breeding very late last year; each had brood to hatch November 1st. Therefore my opinion is that the bees took an airing flight *en masse* during one of the fine days, and the queens going with them in the excitement were unable to get back. I believe queens are also lost in passing from one side of the comb to the other (either round bottom or ends) to deposit eggs, and get chilled to death; but in these cases I had cut passage ways to guard against such probable loss. Each of my queens left traces of having been alive and well this spring. In one strong lot I discovered in March six queen cells unsealed, as well as sealed and unsealed brood, from which I removed the larvæ. This gave me a stock in exact condition to receive a queen in accordance with my law of direct queen introduction. Finding another stock a week or two after to have dwindled a little during the winter, I decided to unite them to another and give the queen to the queenless stock.

After I published this "law" last year in this Journal it was ridiculed in the *British Bee Journal* by Dr. Walker and others, and had it not been for an unfortunate statement by the Rev. George Raynor in his able paper on queen introduction—which he has since frankly declared had no reference to my "law," though everyone thought it had—I believe its truth and value to bee-keepers would have been firmly established by British bee-masters. Mr. W. B. Webster, in the *British Bee Journal* for January 6th, page 10, speaking of it says, "it is sound and practicable, but Simmins' (*i.e.*, Pond's) is better, not in its efficiency, but in its simplicity. I have had considerable experience in both during the last season and have been eminently successful with each. But who would go to the trouble in the middle of the season to deprive a stock of every means of raising a new mother, when by simply keeping your fresh queen by itself for half an hour (after dark at night, mind) the thing is done? As to the success of each, they are about equal, neither is infallible, but both are near enough to be considered a great success." This is by an apiarist who stands high amongst British bee-keepers, and though he and several others stated in the fall they had tried it without a single failure, I do not question his honesty in the least in the above extract; but I must say I consider he has not thoroughly grasped its value and advantages. It is a piece of knowledge to be used with advantage just at such times and conditions that it may be applied. For instance, we can rear queens in February and March, but who would be insane enough to do so? or if a stock is found queenless in winter, spring, summer, or autumn, with no means of rearing a queen, which is the quickest done, give a queen without a moment's loss of time, or wait till dark when it is cool, then keep the queen half-an-hour by herself, then take a lamp and drop her in under the quilt? You run a risk of chilling your queen and you might have other business to attend to every night. One bee-master I see uses bottles of hot water to keep the queen warm. I am not going to run Pond's or Simmins-Pond's system down, because I can well understand the principle on which it works—viz., the bees are deceived, as explained by Mr. Pond, in believing it is their own queen come back, and he further explains that it is the movements and behaviour of the queens themselves which cause the bees to encase them.

It has been laid down by all authorities that it is next to impossible to enthrone an alien virgin queen several days old in a normal queenless stock, though no difficulty is found with one only just hatched. Now, if Mr. Webster will prepare a stock in accordance with my "law" to receive a fertile queen, but instead of a fertile one give them a virgin one at the top, as near the centre of the cluster as possible, he must do it in the daytime, so that he can watch the entrance, for in a very short time she will be seen to run out of the hive. Here the bees let her alone, and though they are actually begging her to stop she will not, because she is frightened, and had the bees not been in that condition they would have killed her. Cage this virgin queen in a pipe cover cage on some food for two days, and she will remain when set at liberty. A few experiments with virgin queens in connection with my "law" will shed much light on Pond's system, which under certain circumstances and conditions is much better than mine—that is, if you do not want to be absolutely certain of success, but let us consider its value.—A HALLAMSHIRE BEE-KEEPER.

(To be continued.)

PERFORATED ZINC FLOORS.

I FOLLOWED the advice of "A Lanarkshire Bee-keeper" last year in putting perforated zinc as a floor for three of my hives. The whole

floor is covered, and its sides are like a bird cage drawer, pulling out at the back. Below is another drawer with a wooden bottom. I have this filled with dry peat. I drew out the drawers a few days ago. One hive had half a teacup full of dry debris, and perhaps a dozen dead bees among it. The other two hives were quite clean on the perforated zinc, and had each half a dozen dead bees. There was a good deal of debris, powder, and cell bottoms, &c., which had got through the perforated zinc on to the peat. I send you a bit of the zinc. It has as large holes as it well can have so as to prevent bees getting through. The bees are strong. I have not yet examined them above, but all are bringing in a good deal of pollen. I consider the change very satisfactory.—F. M.



°° All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Mushrooms in Cucumber Frames (A. D.).—We have had excellent Mushrooms in Cucumber and Melon frames by inserting spawn in the beds towards the end of summer, when it is not necessary to apply water so copiously to the plants as early in the season. This method is specially referred to in Wright's "Mushrooms for the Million," the fifth edition of which will shortly be issued.

Seedling Auricula (J. Luck).—The moss in which the flowers were packed was not damp enough, and they arrived quite flaccid and partly curled. We cannot thus judge of the substance of the self. The colour is rich, purplish violet, but the paste is not dense; it is perhaps weakened by withering. You should grow a plant well and get it "in" for one of the shows. The other flower is inferior; we do not know its name, and in its present form scarcely think it is worthy of a name.

Eucharis Mite (R. R.).—This destructive mite attacks other bulbs also. A correspondent some time ago sent us leaves of Eucharises from plants from which he had banished the enemy with a preparation he had found safe and effectual. He intimated his intention to advertise his mite-killer, but we do not know whether he did so or not, and we cannot remember his address or we would send it to you. Since the foregoing was in type we have received your second letter and bulb, which shall be carefully examined.

Tomatoes Dying (G. M.).—We regret our inability to satisfactorily account for the collapse of your plants. The "small lumps" on the stems we consider are incipient roots, and assuming that the atmosphere is not excessively moist, they suggest an attempt on the part of the plants to gather the support they need from the air that they cannot find in the soil. It appears evident that either the soil or the atmosphere are unsuitable for the well being of the plants, as we fail to observe that the disease is of fungoid origin.

Primroses and Polyanthuses (R. W. Beachey).—The flowers you send are very good indeed, some of them, notably the large white and coloured hose-in-hose varieties, very superior. The crimson ones are rich in colour, though not marked advances on others, the pale blue and silver very attractive; but those of which Naval Brigade is a type are not equal to some varieties for which Mr. G. F. Wilson has been awarded first-class certificates. You should submit your best forms to the Floral Committee of the Royal Horticultural Society.

Single and Double Violet (Cambridge).—The "best" of anything is very much a question of taste. The single Violet Wellsiana is excellent, and as a double the variety of Neapolitan known as De Parme is one of the best. The double white Neapolitan (syn. Count Brazzi's Neapolitan), Swanley White: and Rawson's Single White are worthy of your attention. As to the silver-leaved Zonal Pelargoniums with white flowers, you should try and grow Mont Blanco better. We have seen it in good form, and you might also try Variegated White Clipper. They are both good when well cultivated.

Mushrooms (W. Kidd).—The "clump" is remarkable for the number of small Mushrooms it contains; they appear as if piled one on the other, and we cannot spare the time to count them. If the entire bed is similarly covered, or we might say encrusted, we should think it necessary or advisable to scoop some of them out with a knife to enable those surrounding to develop, as in the struggle for existence the great majority must fail to attain any useful size. No apology is needed for sending them; on the contrary, we are obliged by your bringing such an extraordinary cluster before us.

Vine Growths Fasciated (J. D.).—The shoots are what are termed fasciated, the apex of growth having from some unknown cause become broken or divided, resulting in an aggregation of shoots united in one stem. If this is the first year the Vine has produced such shoots it may be accidental rather than constitutional, and next year the flattened stems may not appear. We have known, however, a Vine to produce such growths yearly, and it had to be destroyed. You will not err by relying as far as possible on the round laterals for pruning, or rather for bearing another year. An excess of vigour appears to conduce to the malformation. You give no particulars about the Vine nor the border in which it is growing.

Possibly surface roots are not very abundant, and the soil may be deficient in the mineral elements that Vines require to be well sustained.

Zonal Pelargoniums for Winter and Summer (E. F.).—There is not a marked difference in the flowering periods of Zonal Pelargoniums, and they can be grown to flower at any time according to the system adopted. The following, however, are all good for winter flowering, and have been selected from Mr. Cannell's collection. Singles: dark and crimson—Mr. H. Cannell and Raphael; scarlets—Ajax and C. H. Swinstead; orange or salmon—Swanley Gem and Lady Chesterfield; pink—Edith George and Eurydice; white—Queen of the Belgians and Eureka. Doubles: F. V. Raspail, scarlet; Lord Derby, pink; Blanche perfecta, white; Black Knight, crimson. Other good varieties for later flowering are Kentish Fire, scarlet; Mrs. Robertson, bright pink, white centre; Ferdinand Chaffolte, magenta; Mrs. Holford, salmon-pink, all singles; with La Cygne, white, and Spade Guinea, orange-scarlet, amongst doubles. You should have stated the number required.

Arranging Carpet Bed (Merchant).—Assuming the Mesembryanthemum is *M. cordifolium variegatum* we do not think the outer panels would look well planted with it and edged with Golden Feather, nor do we think the centre of the central panel would be improved by the Golden Feather as suggested. An alternative arrangement is submitted for your consideration. Central panel—Alternantheras with a Centaurea in the centre, the Alternanthera encircled with a thin ring of Golden Feather, and this margined with a line of very dwarf Lobelia; continue the margin round panels 8, 9, 10, 11, 12, and 13, which fill with Mesembryanthemum, the outer panels, 2, 3, 4, 5, 6, and 7, Alternantheras margined with Cerasium. If your Lobelia is too tall for edging the "ray" you can reverse the order of the two plants. The weakness of your plan rests, however, we think, in the proposed method of planting the six outer panels. The diameter of the bed should have been stated.

Blood as Manure (Surrey Valley).—In order to derive the most benefit from blood as a manure in liquid form it must be used fresh, or it will soon coagulate and speedily decompose, whereby ammonia is formed and consequently lost. To the 36 gallons of water you may add 2 gallons of blood, mixing it at once and using directly, so that the decomposition may take place in the soil, and be available as plant food. The active principle of blood as manure is nitrogen and its numerous salts, which form bases for the formation of nitrates. In the liquid form it may be applied at every alternate watering, or two or three times a week. It is, however, best mixed with dry earth, and in this form it will keep for a long time without loss from decomposition. About six times the quantity of soil as of blood is necessary, and a good handful per square yard a proper quantity to apply as a surface-dressing.

China Asters (F. J.).—As you have plenty of leaf mould and little or no stable manure, the soil of your garden being rather light, we think you might succeed in growing Asters very well, planting stout plants, not drawn-up weaklings that are so common, after dipping them in a solution of soft soap and tobacco water for destroying any insects there may be on them, and preventing the attacks of others. A day or two before planting we should give the ground a soaking with guano water at the strength of 2 ozs. per gallon, pouring half a gallon on each square foot. After planting, mulch with leaf mould, with which keep the ground well covered during the summer. For the first week or ten days, or until the plants start growing, sprinkle and water them with pure water, after that pour guano water between them, not on the foliage, at the strength of 1 oz. to the gallon as often as it may be needed for keeping the ground moist. Pure water applied to the foliage freely with the syringe on the evenings of warm days will also be beneficial to the plants. On the first appearance of an insect dust the plants when wet with tobacco powder. We have had a fine late display of Asters by sowing seed the second week in May in rich free soil kept uniformly moist.

Vines Leaves Scorched (Hambledon).—The unfortunate condition of your Vines is not due to any kind of insects, but to scorching, which would not have occurred if the leaves had not been so destitute of tissue. We have not often seen more flimsy and essentially imperfect foliage. Such leaves are bound to be scorched at the edges in an hour after a few dull days, and to decay near the leafstalks if the house is damp and the temperature low at night. The medium in which the roots are working is destitute of lime and potash. We suspect they have penetrated the subsoil, and in that case should be lifted at the proper time, or other measures taken to induce the abundant production of fibrous roots in good firm soil near the surface of the border. A marked improvement in the texture of the foliage would then soon be apparent, scorching would cease under good management, and better Grapes follow. The state of the foliage is simply an expression of the evil at the roots. Dry surface soil in summer causes the roots of Vines to descend into the subsoil because it is moist, or in other words, they will leave good soil if it be dry, for bad if it be damp; overcrowding of the growths is also fatal to the development of healthy leaves. At present you might try the effect of a good soaking of lime water, also give liberal applications of liquid manure during the season.

Names of Fruits.—The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and beyond that number cannot be preserved. —(H. J. Cassin).—Nos. 1 and 3 we cannot identify; 2, is no doubt Bosson. It is getting late now for the identification of Apples.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. —(R. L. E. G.).—Not known; very much resembles an *Haworthia*. It should have been accompanied by a leaf. (J. J. S.).—1, *Oncidium pumilum*. 2, *Alysum saxatile*. (Pen and Ink).—1, *Epimedium alpinum*. 2, Too much withered to be recognised.

Swarming and Sections (R. C.).—A hive containing only four frames 12½ by 8½ is far too small; at least eight more frames must be given as the bees increase in number. You have little chance of securing both a swarm and section honey. If you wish to introduce a young queen it will be better to procure one. In June most bee-keepers will sell young queens at a low price. You will thus not need to take a swarm "in order to have a young queen in the hive," and may hope with judicious management to obtain a good yield of section honey. We are sorry to hear that your hive was blown over, as such a catastrophe would entail serious loss. Strong stocks in full-sized hives are most profitable, and cause least anxiety.

COVENT GARDEN MARKET.—MAY 11TH.

TRADE good this week, and with full supplies prices have been maintained.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.	
Apples, $\frac{1}{2}$ sieve	2	0	to	5	0	Oranges, per 100	6	0	to 12	0
" Nova Scotia and	10	0	13	0	Peaches, dozen	0	0	0	0	
Canada, barrel	0	0	0	0	Pears, dozen	1	0	2	0	
Cherries, $\frac{1}{2}$ sieve	0	0	0	0	Pine Apples, Englisb,					
Cobs, 100 lbs.	50	0	55	0	per lb.	1	6	2	0	
Figs, dozen	0	0	0	0	Plums, $\frac{1}{2}$ sieve	0	0	0	0	
Grapes, per lb.	4	0	8	0	St. Michael Pine, each	2	0	5	0	
Lemons, caso	10	0	15	0	Strawberries, per lb. ..	3	0	6	0	
Melon, each	5	0	6	0						

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes, dozen	1	0	to	2	0	Lettuce, dozen	1	0	to 1 6
Asparagus, bundle	8	0	12	0	Mushrooms, punnet	0	6	1	0
Beans, Kidney, per lb.	1	3	0	0	Mustard and Cress, punt.	0	2	0	6
Best, Red, dozen	1	0	2	0	Onions, bunch	0	3	0	6
Broccoli, bundle	0	0	0	0	Parsley, dozen bunches	2	0	3	0
Brussels Sprouts, 1/2 sieve	0	0	0	0	Parsnips, dozen	1	0	2	0
Cabbage, dozen	1	6	0	0	Potatoes, per cwt.	4	0	5	0
Capsicum, per 100	1	6	2	0	" Kidney, per cwt.	4	0	0	0
Carrots, bunch	0	4	0	0	Rhubarb, bundle	0	2	0	0
Cauliflowers, dozen	3	0	4	0	Salsify, bundle	1	0	1	6
Celery, bundle	1	6	2	0	Scorzouera, bundle	1	6	0	0
Coleworts, doz. bunches	2	0	4	0	Seakale, basket	0	3	0	0
Cucumbers, each	0	4	0	6	Shallots, per lb.	0	3	0	0
Endive, dozen	1	0	2	0	Spinach, bushel	3	0	4	0
Herbs, bunch	0	2	0	0	Tomatoes, per lb.	1	0	2	6
Leeks, bunch	0	3	0	4	Turnips, bunch	0	4	0	6

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.	
Aralia Sieboldi, dozen ..	9	0	to	18	0	Fuchsia, dozen	6	0	to 10	0
Arbor vitae (golden) dozen ..	6	0	9	0	Genista, dozen	8	0	12	0	
" (common), dozen ..	6	0	12	0	Hydrangea, dozen	9	0	12	0	
Azalea, dozen	18	0	36	0	Lilies Valley, dozen	9	0	18	0	
Begonia, dozen	4	0	9	0	Marguerite Daisy, dozen ..	6	0	12	0	
Cineraria, dozen	4	0	8	0	Mignonne, dozen	6	0	9	0	
Cyclamen, dozen	12	0	24	0	Myrtles, dozen	6	0	12	0	
Dracaena terminalis, doz.	30	0	60	0	Palms, in var., each ..	2	6	21	0	
" viridis, dozen	12	0	24	0	Pelargoniums, dozen	9	0	18	0	
Erica, various, dozen ..	18	0	42	0	" scarlet, dozen	4	0	9	0	
Euonymus, in var., dozen ..	6	0	18	0	Primula sinensis, dozen ..	0	0	0	0	
Evergreens, in var., dozen ..	6	0	24	0	Solanums, dozen	9	0	12	0	
Ferns, in variety, dozen ..	4	0	18	0	Spirea, dozen	9	0	12	0	
Ficus elastica, each ..	1	6	7	0	Tulips, per dozen pots ..	0	0	0	0	
Foliage Plants, var., each ..	2	0	10	0						

CUT FLOWERS.

	s.	d.	s.	d.		s.	d.	s.	d.	
Abutilons, 12 bunches ..	2	0	to	4	0	Marguerites, 12 bunches	2	0	to 6	0
Anemones, 12 bunches ..	2	0	4	0	Mignonette, 12 bunches	4	0	6	0	
Arum Lilies, 12 blooms ..	3	0	6	0	Narciss, 12 bunches ..	2	0	6	0	
Azalea, 12 sprays ..	0	6	1	0	,, White, English, bch.	0	0	0	0	
Bouvardias, bunch ..	0	6	1	0	Pelargoniums, 12 trusses	0	9	1	0	
Camellias, blooms ..	1	0	3	0	,, scarlet, 12 trusses	0	4	0	6	
Carнатions, 12 blooms ..	1	0	8	0	Parma Violets (French)	2	6	8	6	
,, 12 bunches ..	0	0	0	0	Poinsettia, 12 blooms ..	0	0	0	0	
Cornflower, 12 bunches ..	0	0	0	0	Primroses, 12 bunches ..	0	6	0	8	
Cyclamen, 12 blooms ..	0	4	0	9	,, white 12 bunches	0	9	1	6	
Daffodils, var., doz. bchs	2	0	6	0	Primula (single), bunch ..	0	0	0	0	
Eucharis, dozen ..	4	0	6	0	,, (double), bunch ..	0	9	1	0	
Gardenias, 12 blooms ..	1	6	3	0	Ranunculus, 12 bunches	3	0	6	0	
Hyacinths, Roman, 12 ..	0	0	0	0	Roses, 12 bunches ..	0	0	0	0	
,, sprays ..	0	0	0	0	,, (ladoor), dozen ..	0	9	1	6	
,, Dutch, per ..	1	0	3	0	,, Tea, dozen ..	1	6	3	0	
Lapageria, white, 12 blms.	0	0	0	0	,, red dozen ..	2	0	4	0	
Lilium longiflorum, 12 ..	4	0	6	0	Stephanotis, 12 sprays ..	2	0	4	0	
blooms ..	4	0	6	0	Tropaeolum, 12 bunches	1	6	2	0	
Lilac (white), French, ..	4	0	7	0	Tuberose, 12 blooms ..	0	6	1	0	
bunch ..	4	0	7	0	Tulips, dozen blooms ..	0	6	1	0	
Lily of Valley, 12 sprays	0	9	1	0	Violets, 12 bunches ..	0	4	0	6	
					,, Czar, French, bunch	0	0	0	0	



PIGS.

By cleanliness in the management of pigs it may be well to mention that we mean a wholesome dietary as well as an absence of filth in the stys. Fed upon corn, milk, and vegetables, and kept in a clean sty with plenty

of dry clean litter or straw, the pigs thrive, grow, and fatten quickly, and the pork is quite certain to be both palatable and wholesome. If we would have pigs answer in the best way we must see that they are kept warm as well as clean and well fed. Frequently have we seen several pigs huddled together for warmth in stys reeking with filth, and with hardly a scrap of dry litter. It is by such a sight that we are able to realise the true force of the saying, "starved with cold."

Because pigs will consume all sorts of filth, and appear to revel and thrive upon it, and in a condition that would be fatal to most animals, it has probably become so customary to allow them to eat unclean food and be kept in filthy stys. More than this, we have known cases where they have been regularly fed upon butchers' offal and other foul garbage. Such practices bring a Nemesis in their train, giving rise as they do to infectious diseases leading to a serious loss. Swine fever has been so rampant that markets have been closed again and again. Complaints loud and persistent have been made of the too general closing of markets, but the end and aim of such measures is of course for the general benefit, and they are therefore to be commended. If, in addition to the closing of markets, closer sanitary inspection were enforced in farm homesteads we might then hope that there would be an end of swine fever.

To effect a radical change in swine management we would insist upon the importance of breeding more pigs upon every farm. To do this profitably there must be a careful selection of parents. We have first of all to consider what is our special object in keeping pigs. If it is principally for selling them as soon as they become fit for sale, then we require sows of a close, chubby, compact form, with a tendency to fatten quickly while quite young. On the day of writing this article we saw a number of young pigs upon one of our farms where we had selected the sows with the especial intention of breeding porkers for the London market, but the bailiff of that farm had used a boar quite unsuitable for our purpose, with the result that we have now many pigs with such large frames that they must be kept till they weigh from 300 lbs. to 400 lbs. They will then be worth a considerable amount, but the return upon expenditure will be slower than we either intended or like.

Pigs of the sort we recommend are to be found everywhere if only due care is taken in selection. To select a special breed as the type of porkers for London, we may mention the Berkshire as being especially remarkable for fattening early and being very profitable. We have been very successful with this famous breed of pigs, and our plan of keeping the sows in high condition has answered very well with them, the farrows being sufficiently numerous, and the pigs both strong and healthy. We have within the last month had about twenty of our sows farrow, and we have ample reason to feel satisfied, for we have only had one comparative failure, one sow having had only three pigs. This sow proved so jealous of any interference with her small family, and so savage, that we had to dispose of her with her pigs at an auction sale. The other pigs, nearly 200 in number, will not be forced on, but will be kept in a healthy growing condition till harvest, when they will go out upon the corn stubbles and then soon be brought on for sale.

We said in our last article that the best age at which to allow a young sow to begin breeding is twenty months. A careful watch should be kept upon every sow from the time of farrowing, in order that only gentle, careful mothers are kept to go on breeding. The size and con-

dition of a sow must also have some influence upon how long it is kept for breeding purposes. Sooner or later it will fail, and then we must fatten it as quickly as possible. Nor is this fattening of old sows at all unprofitable. Many such an animal have we sold at prices ranging from £6 to £10. It must also be owned that we have had to sell inferior animals at from £3 10s. to £4.

For the first month after farrowing an extra amount of care is required to keep the pigs clean, dry, and warm. The sow should never be withdrawn from them till they are at least of that age, and even then it is best only to allow them to run occasionally from the sow under a slip board to get food which the sow would consume without some such precaution. At about six weeks they are weaned, and are then forced on as quickly as possible for sale when they reach the porker stage.

WORK ON THE HOME FARM.

At length we are able to record genial weather, frequent showers, the thermometer above 50°, speedy germination of seed, and a strong free growth of all farm crops. Very different has the weather been during and after the Mangold sowing to what it was last year. Then it was so dry that the plant gained size very slowly; now it has been precisely the moist warm weather that is so conducive to seed germination and quick growth. Weeds are abundant, and the workmen have been busy drawing docks among the Wheat. Of other work in hand or finished, we may mention the sowing of Clover, mixed seed for three or four year layers and for permanent pasture. We have been laying down two pieces of land to permanent pasture, one piece for trial upon a heavy land farm, and the other for an addition to the park upon the home estate. There is still considerable difference of opinion as to the use of Perennial Rye Grass in permanent pasture. Messrs. Sutton still use a certain proportion of Rye Grass in their mixtures for permanent pasture. This is done in perfect good faith, and they strongly recommend the practice to their customers. Mr. Martin J. Sutton in his book on permanent and temporary pastures says, "One of the main reasons for including Perennial Rye Grass in mixtures for permanent pastures is its reliability for ensuring a plant. It yields a crop during each of the first two years, such as could not possibly be obtained without it. It fosters the growth of other varieties and aids the general progress and development of those Grasses which are slow in coming to maturity. On all these grounds I advocate the use of Perennial Rye Grass seed in prescriptions for permanent pastures. Even on land where the plant is certain to die out, excellent service will be rendered while it lasts; and by yielding up its place when other kinds are sufficiently established to occupy the land, weeds are kept in check and crops of valuable herbage are secured meanwhile." We give this quotation for what it is worth, and because we have no prejudice in the matter; we are also putting Mr. Sutton's advice to practical test both for our own information and the guidance of our readers. We must own, however, that some of the best new permanent pasture we have seen contains no Rye Grass, but it must be owned that we have seen much new pasture very foul with weeds for the first two years. If Rye Grass serves to keep down weeds, to afford a strong growth while other Grasses are being established in the soil, then we grant its use is desirable, but before all things our aim must be to obtain a well knit pasture by the third year.

METEOROLOGICAL OBSERVATIONS.


CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain
1887.		Barometer at 32° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature		
May.			Dry.	Wet.			Max.	Min.	In sun.	On grass	
		Inches.	deg.	deg.	E.	deg.	deg.	deg.	deg.	In.	
Sunday	1	31.143	46.5	41.4	E.	44.8	54.4	32.8	101.4	24.9	0.172
Monday	2	29.636	45.1	44.7	N.E.	44.9	51.4	40.8	66.8	25.4	—
Tuesday	3	29.595	43.2	47.4	E.	45.1	57.2	44.2	68.9	44.1	0.172
Wednesday	4	29.591	48.3	45.4	W.	45.9	53.3	43.6	75.4	43.8	0.012
Thursday	5	29.781	50.3	47.0	N.W.	46.2	59.5	45.3	94.2	42.8	—
Friday	6	29.883	43.1	46.8	N.	46.8	52.3	42.4	67.2	37.3	0.137
Saturday	7	30.167	48.7	45.6	N.	46.7	60.7	43.2	103.2	40.0	0.012
		29.828	49.7	45.5		45.8	55.4	41.8	82.4	38.3	0.514

REMARKS.

- 1st.—Fine, with sunshine at times; bright evening; lunar halo at 8.30 P.M.
 - 2nd.—Wet from 5 A.M. to 9 A.M.; overcast morning; fair after.
 - 3rd.—Dull and foggy; rain in morning; a little sunshine in early afternoon; very dark after 2 P.M., followed by rain from 2.30 P.M. to 3.15; bright after.
 - 4th.—Gloomy early; a glimpse of sunshine about 11.30 A.M.; but rain by noon and frequent showers after.
 - 5th.—Cloudy morning; fair afternoon, but without bright sunshine.
 - 6th.—Dull early; soaking wet all day; fine evening.
 - 7th.—Cloudy morning; fine afternoon; shower about 6 P.M.
- A rather dull week, with frequent rain. Temperature higher than that of the preceding week, but nearly 8° below the average.—G. J. SYMONS.



COMING EVENTS

19	TH	
20	F	
21	S	Crystal Palace Summer Show.
22	SUN	1st SUNDAY AFTER ASCENSION.
23	M	
24	TU	Royal Horticultural Society. Fruit and Floral Committees at 11 A.M.
26	W	

UNORTHODOX VINE PRUNING.

SOME time last year an article appeared in the Journal in advocacy of what may be termed the method of long-spur pruning when Vines failed to produce crops on the short-spur system. On reference I find the article on page 173, August 26th, 1886, and it is elaborately reviewed by Mr. Abbey on page 244, September 16th, of the same year.

The initial article was based on failures in producing even moderate crops of Grapes with Vines weak and exhausted on the one hand, producing small wood and foliage, and long-jointed and luxuriant, on the other, through strong roots entering the subsoil, few or no fibrous roots being found near the surface of the soil. It was stated that by a change in the method of pruning alone, Vines in the condition indicated might be rendered much more fruitful than before. An objection to the method of pruning to bold buds on ripened parts of the laterals, at whatever distance those buds might be from the rods, was anticipated, and it was suggested that the habit of close pruning was so confirmed that its votaries of the follow-my-leader type appeared to think more about the appearance of Vine rods in winter than anything else; but it was further observed that nine out of ten of the owners of Vines want Grapes, and the cultivator who produces the most and the best gives the greatest satisfaction, and is in a far better position than he who prunes, as he imagines, in the "proper" manner, yet produces inferior crops.

A rather striking example of the accuracy of those remarks is afforded by the results of Mr. T. W. Sanders' experience at Lee. In the very interesting garden of Mr. J. W. Larking at The Firs is a good range of vineries. The Vines are old, having been cut back to the rafters more than once, and the roots are to a large extent beyond the control of the gardener, the outside "border" being only about 6 feet wide, while some of the roots have probably extended to nearer 60 feet. Yet something has been done to the outside 6 feet border that affords a significant lesson on the effects of lime. Those who saw the Vines in question four or five years ago and can see them now will be impressed with their great improvement. The lime on the narrow strip of ground outside the house has done something towards their improvement, but the change of pruning that was resorted to inside the house has done a great deal more.

Weak wood, small thin leaves, and no Grapes worth mentioning is fairly descriptive of the Vines before Mr. Sanders took a departure in pruning. The wood is now as strong again, the individual leaves no doubt much more than twice the weight, and the crop of fruit will this year be of thrice the value that the Vines produced

when pruned to the buds at the base of the laterals. And yet when gardeners have "looked round" in winter and seen the Vines "half pruned," they have shaken their heads as if in doubt as to whether the pruner was "professional," and some of them have expressed concern as to Mr. Sanders "getting wrong over them Vines." The truth is he knew what he was about better than his friendly critics did; and so far from "getting wrong" has left his charge with honour for a new line of life, a position that only able men can fill. Had the old Vines been uprooted five or six years ago, new borders made, and young Vines planted, trim rods and finer Grapes would be had now than the old Vines are producing. But for reasons it is not necessary to particularise, such a renewal could not be effected; nor could the old Vines, with their roots "nobody knew where," be taken up and replanted. No great crops were expected from the Vines, and all that the gardener was desired to do was to make the best of them as they were. He has done so. Fresh soil was applied to the narrow border, rich top-dressings given, liquid manure employed, an ammonia-charged atmosphere produced, with beneficial results; but it was not until the close-spur pruning was abandoned that improvement in the Vines became so apparent.

On examination of the leaves produced at the base of the laterals they were found to be very small and withered before the season was over. The buds set at the base were similarly small—mere pointed specks, and it was concluded that little nutriment could be stored there. A few joints higher the leaves were better, the buds at their base rounder and bolder, these with the stems holding more nutrient matter secreted, and as the wood was ripe to some of those buds the laterals were shortened. The crop was better the first year, and during the season stronger canes and better foliage followed, with the material result that this year the crop of fruit is finer in turn.

It has been said that lime was applied to the narrow outside border. The dressing was an extraordinary one. It was spread on at the least 2 inches thick, probably more—enough, however, to form a plaster-like casing. On breaking this up and raising the flakes it was seen that fibrous roots had formed there. "Who will say after this," remarked the gardener, "that Vines do not like lime?" There can be no doubt that this lime, with the fresh soil and manure dressing on the strip of border, had a good effect; but it may be regarded as equally certain that its action would have been very considerably minimised if short pruning had been adopted, for then the greater part of the food gathered and stored in the Vines would have been cut away, and the weaker and impoverished parts left for cropping. But there is something more than theory to support the view that long pruning was of greater benefit than the lime dressing in invigorating the Vines and improving the fruit.

In one house is a Muscat Vine grown on the extension system—that is to say, one Vine fills the house, several main rods being trained up at intervals, and on these the laterals were closely pruned for years. They probably became smaller each year, at any rate they were only stout enough to develop small leaves and shoulderless bunches of Grapes. A change in pruning, not violent but rather experimental, was resorted to, and it was soon apparent that the departure was a step in the right direction. At the last pruning a selection of the best wood was made, and the laterals shortened to the best placed of the better buds all over the roof—nearly, for

there was a slight exception, and this in the form of an experiment in the other direction, and it proves the truth of the whole case as to the potency of the long pruning. A few of the rods were closely spurred, and this is the result—the closer the pruning the worse the crop. The difference is striking and conclusive. Had the whole of the laterals been spurred in the orthodox way the bunches on this old Vine would not have been half so fine, nor the value of the crop this year nearly so great as it will be under the unorthodox method that was wisely adopted.

A Vine of the Duke of Buccleuch also shows the advantage of long pruning, for the laterals from closely pruned spurs are barren, those from more prominent buds some distance from the base of last year's ripened growths bearing fine bunches. There is no exception to this in the Vine under notice, and I have seen exactly similar results with several other Vines of the same noble Grape—small bunches, or no bunches, from close pruning; fine bunches and plenty of them from longer yet matured portions of the canes.

Let it be clearly and distinctly understood that no change from the orthodox system of close-spur pruning is advocated when satisfactory crops of Grapes are produced, as they are on thousands of Vines; but when Vines break "like straws" on the one hand, producing very small leaves, particularly near the base of the summer growths; or push long-jointed rampant growths on the other, and neither the weak nor the strong bear from close pruning, then obviously nothing can be lost by a change of method, while there is the probability, amounting in some cases to a certainty, of a distinct gain in the form of useful crops of Grapes. By all means improve the roots of unfruitful Vines whenever that is possible, and when active fibres are induced to form freely and abundantly in good firm soil near the surface of the border the character of the foliage and wood will soon be changed, and the short-spur system of pruning may then be safely reverted to without risk, and possibly with advantage. But there are numbers of old Vines in the country, the roots of which are practically beyond control, that would yield more and better Grapes if only half or less than half the number of growths usually permitted were allowed to extend without their leaves crushing or crowding in the summer, and then shortening those growths to the best suitably placed buds on firm portions of the canes in the winter. There is no doubt whatever about that, as anyone may prove who gives the plan a fair trial. Danger lies in overcrowding, and more than one person has erred in not disbudding with sufficient freedom after long pruning, and in not having removed superfluous growths in summer soon enough, and before evil was done by their retention. Avoid those mistakes, and the crops of many Vines may be doubled next year. In looking upwards in a vinery the glass of the roof should be seen between the laterals, and the shadows of these cast clearly and well defined on the ground or floor of the house. Then with good management as regards cleanliness and ventilation, wood and foliage as good as the Vines can produce will mature and eventually bear fruit if the Vines are not positively worn out, as not a few are prematurely by growing them on the thicket system in the summer followed by the orthodox close pruning in the winter.—EXPERIENTIA DOCET.

GIGANTIC NON-ARBORESCENT FERNS.

THE reference to *Angiopteris evecta* made by "Bradwen" in *Journal of Horticulture* of May 5th, page 358, is of a most welcome character, as that interesting Fern, and, indeed, all those belonging

to the same and the allied genus *Marattia*, are becoming extinct in private collections. Yet, as the quoted writer justly remarks in speaking of the plant at Blacklow House, Roby, Liverpool, it is a majestic Fern, with fronds from 12 feet to 16 feet long, and produced so abundantly that from time to time the knife is put into requisition to remove some of the least needed to the appearance of the specimen. "Bradwen" with much reason adds: "That plant is generally found in an out-of-the-way corner of an old-established garden, as it is rarely seen in modern ones." It is a somewhat unpalatable statement, which, however, must be accepted as truth, that, notwithstanding their majestic and uncommon beauty, the *Angiopteris* and *Marattias* are now seldom found in any other places than old-fashioned private establishments and botanical gardens; and we are at a loss to understand why they should be so neglected, as their culture is extremely simple and their decorative qualities exceptionally good. When these plants have been once purchased there is hardly any danger of their being lost to their possessor, provided they are not kept in too warm and too dry a house, and that at all times of the year they receive an abundance of water at the roots—really essential points in the cultivation of all the plants belonging to that class of semi-aquatic Ferns, which for the decoration of large winter gardens have no equal.

The *Angiopteris* and the *Marattias* are closely related and require similar treatment. They are all strong-growing plants, producing very broad or spreading fronds from 6 to 18 feet high. In the *Angiopteris* the base of their stalk is clubbed, and varies from 6 to 10 inches in circumference, according to the size of the fronds, whereas in the *Marattias* their base is surrounded by appendages of a very fleshy nature, which frequently assume the character of abnormal or imperfectly developed fronds. Only two species of *Angiopteris* are at present known in cultivation; these are *A. evecta* from Ceylon and the Pacific Islands, and *A. pruinata* from Java, both of which require a stove, or at least a good intermediate house. The fronds of *A. evecta*, which is the species most frequently met with in gardens, are bipinnate, with bright shining green pinnules from 3 inches to 5 inches long. In general appearance *A. pruinata* greatly resembles that species, but its pinnules are somewhat broader, and their distinguishing feature is the fine bluish-white colour of their under side, which differs from any other kind known.

With the exception of *Marattia elegans*, which is a native of New Zealand, where the scales found at the base of the fronds are used as a vegetable and subjected to various ways of cooking, and which does equally well in a cool or in a warm house, all the other known species require a house in which the temperature does not fall below 50°. *M. alata*, a native of the West Indies, is a highly ornamental Fern, which makes a handsomely decorative plant for the conservatory. Its fronds, which are bi or tripinnate, vary from 3 to 6 feet in length, and have their stalk winged throughout their entire length. There are also the *Marattia laxa* from Mexico, *Kaulfussia ascensionis* or *purpurascens*, the dwarfest kind known, whose bipinnate fronds rise from between two fleshy appendages to the height of about 4 feet, and are furnished with broad pinnules, wavy on their margins, and of a very dark green colour. But the handsomest of all *Marattias* is undoubtedly that which has been dedicated to Sir Daniel Cooper, M. Cooperi, from New Caledonia, and which is still very scarce, although it has been introduced for over twenty years. The fronds of that truly magnificent species are very large, massive, and quadripinnate, being thus more finely divided than those of any other known species. These are borne on very rough, thorny, stiff stalks, and rise from between two equally horny-looking appendages, which possess a most peculiar appearance. The pinnæ, instead of being entire, as in most known species, are deeply dentate on their margins, and while young of a light green tint, taking after a time a metallic hue, which they retain until later on, when they assume the dark green colour particular to *Marattias*.

When *Marattias* and *Angiopteris* are grown in pots, these should be partially stood in water, or watered very freely, as being swamp-loving plants they require their roots, which are more fleshy, and entirely distinct from those of any other Ferns, to be continually moist. If planted out in the conservatory they could not have a better situation than one near water, into which, in the course of time, their roots will plunge, to the benefit of the plants, as is the case at Liverpool, where "Bradwen" states that the specimen has been planted ever since 1863. The compost most suitable for these Ferns, like most plants provided with succulent roots, should be of an open nature—two parts of rough peat to one part of chopped sphagnum moss, with an addition of sharp silver sand, will be all that is required for them in a young state, although as the subjects gain in strength, something more substantial is needed for their nourishment, and a third part of the compost may then with advantage consist of fibrous loam roughly broken, into which the roots find easy access. The greatest enemies of these handsome plants are the scale and the thrips, which, however, seldom attack

them when grown in a moderately warm temperature only, and well supplied with water at the roots, besides which their leathery foliage is easily washed, and does not, like that of so many other Ferns, suffer from the effects of tobacco, if the plants should be subjected to it to destroy any insect with which they may occasionally and temporarily be troubled. During the hot summer days, or at any time when the temperature of the house in which they are grown is above 70°, *Marattias* and *Angiopteris* derive a great benefit from having their foliage syringed once or twice a day with water of about the same temperature as that of the air of the house.—THEO.

CURRANT BUD MITE.

We have received several examples of Currant shoots infested with the mite known as *Phytoptus Ribis*, and therefore reproduce an illustration we gave some time ago depicting the condition of the buds so attacked. We do not know any means of eradicating the pest except by

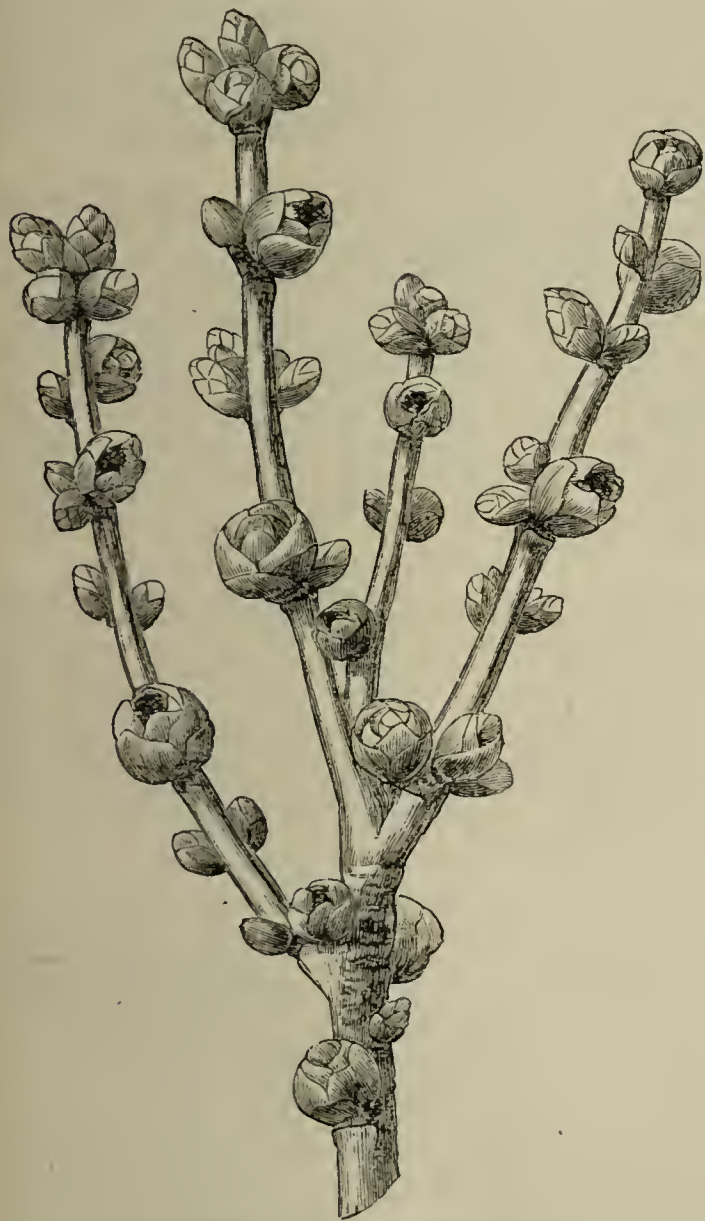


Fig. 63—"Knotted" Currant Shoots.

cutting down the infested bushes and encouraging fresh growths from the base, but probably the best plan is to root out the trees, burn them, and obtain fresh ones from another source.

SILICA IN SOILS—ARTIFICIAL MANURES.

I SHOULD have replied to Mr. Abbey's communication before (page 339), but being from home did not get the *Journal* in time to allow of my doing so. Mr. Abbey says Dr. Voelcker gives an analysis of clay soil containing 84 per cent. insoluble and 1½ per cent. soluble silica, and he, Mr. Abbey, concludes that the current crop removes this soluble silica; and he asks where succeeding crops get their soluble silica from; and he concludes by saying that if we keep on removing the soluble silica from the soil, and do not replace it, that we shall ultimately exhaust the soil of its soluble silica.

Now, let us calculate what 1½ per cent. of soluble silica amounts

to per acre. Assuming that a cubic yard of soil weighs 1 ton (I think this is about the weight, but half a ton will answer my purpose quite as well), then an acre of land 1 yard deep of the clay soil in question will weigh 4800 tons; taking the top or first 6 inches of this we get 800 tons; 1½ per cent. of this gives 12 tons, so we have 12 tons of soluble silica to work on. Mr. Abbey removes from his land two loads of hay per acre; the ash from a ton of hay (Mr. Abbey's loads are not tons, but I can afford to treat them as such), amounts at the outside to one-tenth of the whole, which is 224 lbs. Two-thirds of this (150 lbs.) is silica, so that Mr. Abbey actually removes with each crop of hay 300 lbs. of silica. "But," Mr. Abbey will say, "in eighty-nine years all the soluble silica will be gone, except we replace it." If it were necessary—which it is not—to replace silica, the easiest and best way would be to cart on road scrapings. We do not need to go sixteen miles for them either, and they are not as a rule an expensive form of manure. But how is this soluble silica to be made soluble? Mr. Abbey says by means of the acids in the manure, and he gives that as his reason for applying such manure. But Nature has more than one way of doing things. Here is another way:—"Among the earthy constituents of soils there often exist fragments of felspar and other minerals derived from the granitic and trap rocks, as well as portions of the slaty and other beds from which the soils have been formed, and which, as they crumble down, yield more and more of those inorganic substances on which plants live. The decomposition of these minerals and rocks proceeds more or less rapidly under the conjoined action of the oxygen, the carbonic acid, and the moisture of the atmosphere.—(Johnston)." Now see what a store of silica we have in the soil to gradually become soluble.

Mr. Abbey is farming, and he manures grass land every second year, and the crop following the manure is more vigorous than the second crop. I can understand that, but I cannot understand what follows, for Mr. Abbey says in effect that the unmanured crop averages the same quantity as the other, and is worth more money. I cannot see how this result would repay anybody for carting the manure sixteen miles. Mr. Abbey goes on to describe thriving farms which are entirely worked with farmyard manure. I do not doubt that farmyard manure will keep land in good heart; but I doubt the result being due to silica, and where farmers do not think it worth the trouble to study the question of artificials, so as to put in what is required, they had better keep to farmyard manure. I quite agree with Mr. Abbey, that the use of artificials, or those of them which are simply "patent exhausters," to the exclusion of farmyard manure is a mistake. I never said it was not so. But if, on the other hand, science gives us artificials, by means of which we can reap a double harvest, or something very like it, each year, with one sowing, one reaping, and all the other expensive operations of farming, I think any person who does not avail himself of the assistance of science is foolish. There is as much difference between the old-fashioned style of farming and the scientific method as there is between the coach of days gone by, crawling over the weary road, and the express train of to-day, flashing past like a whirlwind.

"What is the value of silicates?" Mr. Abbey asks. Well, silicates are valuable for what the silica is combined with. Thus: silicate of lime is valuable because of the lime; silicate of potash because of the potash; silicate of soda because of the soda, and so on. But what is the value of silica alone—by itself? It is just as valuable as the paper in which we wrap up a pound of butter, or a packet of tea, or a pound of rumpsteak. The very fact of the animal rejecting the whole of it from its food shows that it is no use to it. In the ground it acts simply as (drainage, or combines and holds other more valuable constituents, as potash, lime, &c.; while in the plant, Nature uses it as an outer skin or covering to protect the leaves from injury, and to strengthen the straw of grass and cereals. Man uses it for mending roads and glazing pottery with principally, but it is contained only in the hair of his head, and there only in a very minute quantity.

I have always been led to believe, and I think all the authorities are with me, that farmyard manure is valuable because it contains phosphates, nitrates, saline and vegetable matters—in other words, organic and inorganic manures. If this is not so there are many readers of the *Journal* who are labouring under the same delusion that I am, but we err in good company. Were it possible for Mr. Abbey to let me have all the phosphates, nitrates, &c., from the manure he uses, he, in return, would be quite welcome to all the silica in mine, and all the road scrapings in the parish to boot.

We can trace the really valuable parts of manures in the bodies of men and animals. The fat is carbon, which the plant draws from the atmosphere and the soil; the bones are phosphate of lime and phosphorus, from the phosphates and lime of the manures. The flesh contains potash, the blood salt, while the lean meat and muscle are made up of nitrogen from the nitrates of the manure. But where is the silica? As well ask where is the paper we wrapped the butter in.

Mr. Abbey objects to my saying, "I look forward to the production of Roses and other crops by means of artificial manures." He should remember that I do not expect this until such times as we shall have ascertained exactly what Roses and other crops are made of. When I know as much about the constituent parts of Roses as Dr. Voelcker knows about Wheat, I shall be able to grow Roses just as easily as Wheat is grown at Sawbridgeworth. That is my opinion, at any rate. I never have made experiments with artificials alone, because my light sandy soil does not admit of such treatment; this is why I have used farmyard manure, and still continue to use it. Mr. Abbey asks "If I think it is a fair experiment to first make ground fertile with farmyard manure, and then to begin experiments on it?" and he

goes on to say, "It is a very one-sided argument." It would be if I did it, or attempted to do any such thing. I am not aware I have advanced the results of any of my own experiments in my criticism of Mr. Abbey's remarks.

If Mr. Abbey would lead us to believe that farmyard manure is only valuable because of its soluble silica and silica-dissolving acids, why does he "trouble with manure at all? Why not go in for silica pure and simple? By the application of quicklime it may be made soluble" (Johnston). The quicklime acting on the manure in the soil would produce a good crop of hay the first year, but the following crop would explode the silica theory, and the land would become barren, and pure silica would never restore its fertility. Will Mr. Abbey try this experiment? and if he will not, why not?

If Mr. Abbey is convinced that farmyard manure owes its virtues to the presence of silica and silica-dissolving acids, will he quote some other authority besides himself? For my part, I have not had sufficient practical experience to offer my own opinions to the readers of the Journal; I prefer rather to avail myself of the teachings of standard authorities.

I will follow Mr. Abbey—with the Editor's permission—on this subject, as far as my abilities will allow; but I beg to remind him that what I took exception to was—1, The reason he gave for applying farmyard manure to clay soils—viz., because silica was deficient in such soils; 2, His saying that soil could not be maintained fertile by means of artificial manure alone. I gave the case of Mr. Prout as a practical proof to the contrary. Beyond that I simply expressed an opinion, and stated what I looked forward to in the future.—D. GILMOUR, JUN.

ARE POTATOES DEGENERATING?

SEEING in your columns that this question still occupies the attention of some writers, and having as an amateur been a cultivator of the "noble tuber" for nearly fifty years, during the last twenty of which I have been a constant exhibitor at the metropolitan as well as local shows, I trust these few lines may not be out of place, but assist in elucidating the question.

During the first years of my experience I grew the varieties common in this neighbourhood at the time—viz., The Shaw, All Eyes, Denne Hill or Irish Kidney, Lapstone, Old Fluke, Noblower, Cockney, Regent, Fortyfold, Sheepstail Kidney, Jersey Blue, Yorkshire Blue, and that fine Potato Dawe's Matchless. All the above were considered good, some of them superb; but where are they now? Not one to be found in this locality. Why is this? From one and all falling easy victims of the disease. Their yielding so readily made growers look for varieties that withstood it better. Importers have had something to do with supplying other sorts in their places, as from America we have had a great number, few of which remain good standard varieties at the present day.

Is it from their earliness that Ashleaf Potatoes frequently escape disease? or does the fact of the old Ashleaf (Green Shoot), being a non-flowerer, in any way assist in its prevention in that variety? I have noted some of our freest flowerers as being of the finest table quality—American Purple, Woodstock Kidney, Edgcott Seedling and other Lapstones, Victoria, Schoolmaster, and other Regents, Snowflake, Beauty of Hebron, Early Rose, and others, although not all being free setters or seed bearers, and I think it would be difficult to find an equal number so susceptible to the disease. In the spring of 1886 I bought several varieties of seedlings, the first season they were sent out; but, in a season not noted for severe disease, I found one-fourth of them badly affected. A feature in the growth of some American varieties by myself has been that in the course of a few years they become of better appearance and quality—notably Snowflake, Adirondack, Queen of the Valley, and White Elephant. Has soil or climate anything to do with this? or is this any process of degeneration? As to planting weakened sets, I never heard it advocated, and I am sure anyone with an eye to profitable culture or exhibition would soon find a means of preventing seed Potatoes from too early spearing, without leaving them, to my mind somewhat slovenlike, undug all the winter. I had on the 4th of April—not having then begun cropping—about eighty varieties by me, and certainly not three of them were injuriously sprouted, nor had they been bruted, many of them being scarcely started now (May 7th). I quite agree with the opinion that many useful sorts have been ousted out of catalogues to make room for others less worthy of a place; this may be attributed to the rage of the present day for novelties. My practice is to dig the whole unoccupied space in my garden before the severest frosts come on and leave it in that state till February. When paying a visit to Mr. J. Hughes at Eydon Hall in January 7th, 1885, I found his Potato ground all prepared in the same way.

As to change of seed, and with it change of soil and climate, I must confess I am very partial to it, as I have had several instances where I have for the first year or two grown from seed so obtained much finer specimens than I have ever since been able to do from seed of my own saving; and in conclusion must confess my belief that I have seen what I can in no other way account for if not from degeneration.—AUDAX TREPIDUS.

THE sample of the seedling Potato Champion \times Magnum Bonum late Potato which was sent you for cooking (page 374) was from a June, 1886, planting on a rough headland of the cold drift clay or tilt at Bedford, which I will venture to say has not for many years past known manure, no artificial having been applied by me to the crop, and this I

consider good soil for quality in late Potatoes, especially those of the Champion type. Market gardeners in this county make a great mistake in endeavouring to grow late sorts of Potatoes on the warm and fertile garden soil of the district, which although admirably adapted for early Potatoes is most unsuitable where good late quality is sought, and especially when such sorts are, as is frequently the case, planted early and afterwards clamped for winter sale. A clear indication of the results of this practice is shown by the market quotations of Bedfordshire-grown winter Potatoes, which are invariably lower than those of other districts; and I am not sure that early planting and high cultivation has not something to do with the supposed deterioration or dying out of some of our best sorts of Potatoes. I am not, however, and never have been a believer in the dying out of originally vigorous varieties of fruit, vegetables, and plants, having never observed a single instance of permanent deterioration where the circumstances for the continuation of the variety have been as favourable as those under which it was launched, and the verified case of the Fluke Potato alluded to by "Thinker" may perhaps yet, on further thought, receive explanation.

In considering the question of the so-called change of seed in the Potato, the fact should not be lost sight of, that in replanting Potatoes on the same land year after year, the plant is practically restored to its former soil. It is not, however, quite the same thing as repotting in old soil, but more like growing the same kind of plant in the same character of soil; in fact, like growing Chrysanthemums for show yearly in the same particularly formulated compost. My mind is open on the point of change of seed in the Potato, and perhaps a thoughtful thinker may be able to close it by carrying the idea further than I am able to do.—T. LAXTON.

PERHAPS you will think this subject has been sufficiently discussed, but I should like to say a few words. Mr. Iggulden thinks a change of seed is not of much advantage, and to a great extent I agree with him; but still there are some cases where it is a decided gain. I have changed seed Potatoes from a light to a heavy soil, and been the loser by the experiment. I have also changed seed Potatoes from a heavy to a light soil, and a very fine crop has been the result. These experiments have taken place during recent seasons with Magnum Bonum. Our soil is a heavy one, but I find Magnum Bonum and Schoolmaster do well with us, particularly the latter. Our seed has been unchanged for the last five or six years, except a portion by way of experiment; but still our crops are good, and so is the quality. We take care, however, to plant a good sample of seed, discarding all small ill-shaped tubers. This I look upon as an important point, as I believe there is a good deal in a careful selection of seed.—E. B.

I AM very glad your fluent and graphic correspondent, "A Thinker," has reviewed what you have published on this subject, and at the same time giving excellent advice on Potato culture. Without any wish to prolong the discussion permit me to differ from his seeming approval of Mr. Iggulden's remedy for Champion precocity—degeneration—"the simple method of leaving the tubers in the ground until wanted"—that is, during the whole winter. Why, that is equivalent to pitting them, which many years' experience, I must say, even with 20 inches of clay over them, will not prevent sprouting. As to the query of "room enough in Ireland," unfortunately, with an exodus of 17,000 a month, this must necessarily be so.—W. J. MURPHY, Clonmel.

ANTHRACITE COAL.

IN your issue of May 5th, page 354, your correspondent "Daventry" asks for the experience of those of your readers who may have used the above coal. We have used it here for a number of years, and would not now like to be without it. We use it mixed with coke. Our boilers are the Cornish Trentham, and heat between 2000 and 3000 feet of 4-inch piping. There is no difficulty whatever in keeping the fires in. We seldom bank our fires up after 10 P.M., and often long before that hour, and on several occasions have found them in good condition the following day at 2 P.M., so that the coal does not burn rapidly but slowly, giving out intense and steady heat. Not half the attention is required as with ordinary coal or coke, and a great saving is effected as well. In severe weather it is a great relief to both master and man to find the pipes hot and fires in good condition on going round the first thing in the morning.—JAS. SPOTTISWOOD, *Queen's Park, Brighton*.

CHRYSANTHEMUMS AND THEIR CULTURE.

IN taking a retrospect of this controversy I can only find that whatever rôle I assumed I have treated the author of the book with courtesy. If Mr. Molyneux had met me in the same tolerant spirit there would have been no reasons for his implied puny threat of the consequences of my treading on his coat tail. He chooses rather to assume the "Sir Oracle" rôle, and all through the controversy to treat me as a foeman altogether unworthy of his steel, and in his last reply he descends from his high horse to fight à la Donnybrook fair. The opinion of his friend intimidates me as little as it proves me to be incapable of knowing a good flower, or of expressing clearly the results of my experience. I have studiously kept personal matters in the background, not because I had any occasion to be ashamed of my flowers, and the allusion to them is unworthy of Mr. Molyneux's position. However, in self-defence allow me to say that there is also somewhat of a lottery in obtaining situations with their conveniences and

other items, and if Mr. Molyneux had occupied my situation instead of Swanmore he might have had a much larger percentage than the 25 per cent. of failures (which I am informed on good authority he does not house even) out of the 1000 plants which he grows for large flowers. It is not easy to comprehend how Mr. Molyneux's friend could fairly estimate the quality of our flowers, taking into consideration the fact that, besides continually cutting the best for house decoration and other purposes, he did not see the remainder for a fortnight after they were at their best; and even if they were what is represented, I have yet to learn that only first prizewinners at Kingston are the qualified judges of the system best adapted to obtain the best results in the West Riding of York. Nor does Mr. Molyneux's reference to my flowers prove a tenth part of a point in his favour, because about one-half of them were grown after his system side by side with the other half, and this I contend is as true a test of the two systems as any other.

Mr. Molyneux says nothing about Mr. Ireland's plants, but professes to be sceptical as to the evidence which I adduced in reference to the flowers exhibited by Mr. Midgley at Huddersfield. I retract nothing which I have written about them, although Mr. Molyneux manages to misconstrue what I wrote. I never said that all Mr. Midgley's plants were grown on the topping system. However, as only first prize records are considered to be trustworthy evidence I have no alternative but quoting the records of a Yorkshire gardener. The reason why I did not do so in my previous rejoinder was because I know that comparisons are odious. Mr. Molyneux, however, seems to have no compunction in so trifling a matter as this. I shall mention no names in this comparison, but will refer Mr. Molyneux to Mr. Wright, who officiated as a judge at several of the exhibitions in this record. This Yorkshire gardener exhibited at Stoke Newington the first time in the year 1882, when he obtained a second prize with blooms cut from plants unstopped on Mr. Molyneux's system. In 1883 he adopted the topping system, and although he never grew more than 120 plants per year of incurved varieties, the following first prize record is the result, all the flowers being cut from topped plants. In this year, 1883, he again exhibited at Stoke Newington, and he won first prize for twenty-four varieties incurved, and first prize for twelve varieties incurved, these blooms having travelled from Yorkshire, and stood for two days and two nights exposure to the heat, dust, and gas of the Stoke Newington Show. A stand of twelve blooms were selected from them and exhibited at the Westminster Aquarium, and in a competition of sixteen competitors won first honours again. The following week we hear of the same exhibitor at Lincoln Show taking first honours for stands of twenty-four and twelve varieties incurved, and also the award for the premier bloom of the exhibition. In the year 1884 this exhibitor was again to the fore at Stoke Newington as the winner of the silver cup for the best twenty-four blooms in the exhibition. In 1885 Mr. Molyneux would have had a closer acquaintance at Kingston with this exhibitor, but owing to the lateness of the season the Yorkshire grower was unable to get his flowers in for that Show. However, he exhibited later on at Burton-on-Trent, and there also secured his first honours for two stands. The same flowers, after doing duty for two days, were transferred to an exhibition which was being held in the town where they were grown, not for competition, but reference was made to them by the *Journal of Horticulture*, which spoke of them as the "best incurved flowers of the Show," and they were highly commended. At this Show there were other exhibitors who grew their plants on the non-stopping system, one whose name stands high as an exhibitor at Liverpool, but had removed from there to a more unfavourable situation, and another, a friend and disciple of Mr. Molyneux, resident in the same town, who also exhibited at other places, such as York, Leicester, Huddersfield, and Chesterfield, and always, with one exception, unsuccessfully. At all these places, with the exception of Huddersfield, and it was not there that he won, the competition against him was light compared with that which the "topper" had to scale at Stoke Newington and the Aquarium. This is no "pen and ink theory," but a record of facts which can be verified by reference to authentic sources. If because Mr. Midgley did not win first honours with his incurved flowers at Huddersfield, Mr. Molyneux claims as a point in favour, how many points will your readers award to my score, sufficient, at least, to justify me asking for the co-operation of Yorkshire growers by recording their experience and observations, as by that means successful Chrysanthemum growing might, and can be, reduced to practice.

Mr. Molyneux professes to have no knowledge of bud complications and as if that settled the controversy as to there being none, tells me that he hopes I am satisfied on that point. I am not satisfied, because it is no answer. What are all those buds which show previous and up to the end of May, and again in July, but "bud" complications? which, on the lines laid down in my paper, clearly shows that they so upset the fundamental principles upon which the Chrysanthemum makes its growth, as to make it a matter of uncertainty (where they occur) as to the time those "buds show" which are really wanted. Instead of answering the question which I put in reference to July buds on Meg Merrilies, Boule d'Or, Princess Teck, &c., Mr. Molyneux is very bold in assertion, but shrinks back under the cover of what they do generally. If the above varieties, and others of slow-growing gross habit do not generally show July buds, this is a fact I knew before Mr. Molyneux told us so, but it does not prove that they may not be subject to bud complications in the earlier stages, as applied to the other varieties mentioned by Mr. Molyneux which are of quicker growth than the former, and both sections alike may be thus subject to the consequences of these complications. Of course a few hundred wasters may be of

little consequence to large growers where neither time nor expense is considered. I took to Leeds, on the occasion of reading my paper there, a quantity of Chrysanthemum stems to illustrate my meaning respecting bud complications, and which fully demonstrated and proved to be true all I have said and written on the subject. If as good flowers can be grown on topped plants as upon untopped ones, and if the evidence which I have brought forward is worth anything, it proves that such can be done. When the system is reduced to practice on the lines indicated in my paper (*vide* page 166) by the co-operation of those growers to whom it was addressed, they will then confer a boon on themselves in many ways, which is unnecessary to recapitulate here, as the most important ones are both clearly and fully expressed in my paper.

Mr. Molyneux's reply *re* Belle Paule helps him very little, because it cuts both ways. If climatic influences played such havoc with this variety, Mr. Molyneux does not show when this climatic influence occurred, nor how the same havoc was not played amongst Chrysanthemums generally, seeing that he frames all his arguments in general terms, and also that he is neither clear as to the evidence which he adduces in reference to the treatment nor the conditions of the plants where they did fail. To quote his own words, "I cannot admit that he has proved me to be wrong." Now that he has rivetted Mr. Bunn to the exhibition board there is no need to further disturb it. Mr. Molyneux's repudiation of any knowledge of bud complication makes it unnecessary to again refer to this question in your columns, but I hope to have another opportunity of appealing to the gardeners to whom my paper was addressed in the first instance, when by such evidence as I shall be able to bring forward, put parallel with my copies of this controversy, when I shall show that whatever Mr. Molyneux's experience has been in this matter, in the West Riding of York the bud complications are the chief factors in our failures in the cultivation of the Chrysanthemum.—T. GARNETT.

RABBITS AND ASPARAGUS—STOCKDOVES.

SOME weeks ago a correspondent asked if rabbits eat Asparagus. I have not the number by me to refer to, but I do not remember having seen it answered. I am always pleased to see gardening matters sandwiched with notes on natural history, and should like to see notes oftener on birds or animals intimately connected with the garden. As I happen to have both wild rabbits and Asparagus in close proximity, I can safely say that rabbits have not interfered with mine. A nest was made a few weeks ago within a couple of feet of an Asparagus bed, and in due course the young ran, and some are still about the garden—the eats of the neighbourhood having had their share. They nibble almost everything besides Asparagus. Neither did the mother touch it at night when she suckled the young, although there was plenty of good "grass" handy. I was interested in the note of "Wiltshire Rector," page 382, on stockdoves, and glad to see he has not forsaken us. As I cultivate—if I may use the word—stockdoves as well as rabbits, it may be of interest to "W. R." to know that I have succeeded in inducing them to breed in a little house—built for a model from which the house of a friend was built—placed up in a tree in the fields. Three pairs were reared in it in 1835, one bird of which I have in confinement, but it has always been very wild. The first nest this season only produced one young bird, which died from the cold, like many more of different species.—J. HAM.

THE ORIGIN OF THE EDGED AURICULA.

[A paper read at the Horticultural Club, May 10th, by Mr. Shirley Hibberd.]

ON the 21st of April, 1886, it was my privilege, in discharge of an honourable duty, to address the Primula Conference on the "Origin of the Florists' Auricula." The horticultural philosophers meeting here with the intent to mix wisdom with good cheer, having desired me to submit a thesis worthy of their solemn consideration, I have elected to discourse briefly on the same subject, but in the endeavour to treat it philosophically, sufficient for the present, perhaps, having been said upon the history of the flower.

In my paper on the history of the flower I have presented a series of evidences tending to the conclusion that the florists' Auricula is of pure descent from the wild Auricula of the Alps, the *Primula Auricula* of the botanists. By the same method I have assigned the origin of the Alpine Auricula to the supposed hybrid *Primula pubescens*, and this, taken at the valuation of Professor Kerner, carries us back to *P. Auricula* and *P. hirsuta*, its reputed parents. Seeing that we cannot prove every proposition, and must allow opinions to have weight, I feel bound to say that although my proposals were warmly debated they were not less warmly accepted by not a few, even of those who in the first instance disputed them. Not to make a catalogue of names, it shall suffice now to say that Sir Joseph Hooker, Mr. J. G. Baker, and the Rev. F. D. Horner concur in my view of the parentage of our two great sections of garden Auriculas. It is no part of my plan on this occasion to enter further into that matter.

Approaching the question in a philosophical frame of mind, I must beg of you to note that I have carried back the history of the edged Auricula to the year 1734, and at that point the edge appears historically to melt into a series of stripes, for anterior to this date stripes were in favour and edges were unheard of. The first edged flower we hear of was called "Honour and Glory," as though Fate had emerged from the abstract to the actual in order to have a hand in providing a name for

the first representative of a new and glorious race of floral beauties. It is a matter of the highest importance in this connection, that while we have in the old books figures of Auriculas, there is no suggestion either in figures or words of an edged Auricula until, in the "Flower Garden Displayed," by Sir Thomas Moore, we have the characters of Honour and Glory plainly set before us, fixing the date of its origin as certainly not later than 1734. In Parkinson's "Paradisus," page, 237, are figures of Auriculas in which stripes are suggested; but the draughtsmanship is of so rough an order that it would be unsafe to found a critical opinion on any of them. While, however, we may lament that the literary florists of the olden time were not careful of our interests in their floral portraiture, we are not without the aid of the facile pencil in respect of evidence of the kind of flower that gave birth to the edged Auricula. There were men who understood flowers in days when edged Auriculas were unknown, and when, possibly, the striped Auriculas had not long been invented. It is generally understood that for the Auriculas of the garden we are indebted to the Dutch florists, who made the first beginning in the domestication of the savage of the Alps. And our debt to the Dutch painters is not less great for representations of the flowers as the Dutch had improved them, and these representations testify to the pure love of nature by which the Dutchmen of old time were animated both in their horticultural and pictorial arts.

The artists of the real Dutch school have never been equalled at any time before or since in the directness of their interpretation of Nature, and the reason of their pre-eminence is seen when we compare contemporary works of other nations, say of the French for example, for the French did follow, as they thought, the wonderful contribution of the Netherlands to the joy of the world. The fact is the Dutch painters of the olden time loved Nature and lived as near to her as circumstances would allow, but their French disciples, in common with disciples of other nations, loved themselves and lived from Nature, and so failed of true interpretation. The one painted the thing as it was; the other as, in his vain fancy, it ought to be. First in the throng of the Dutchmen who have left on record the characters of the flowers of 200 years since. I will name David de Heem, Abraham Mignon, and Jan Van Huysum. These, in their splendid groups of flowers, show us the Auriculas of the days of Gerard and Parkinson, and there was a golden opportunity for London florists in the last exhibition of Old Masters at the Royal Academy for observing in a picture, by Van Huysum, the characters of the florists' Auricula of his day. I have placed before you a rough sketch of a bunch of flowers as they appear in the centre of that picture. The selfsame flowers, or say flowers of the same type, occur commonly in the groups of Jan Van Huysum; they are usually in trusses of ten or twelve; the pips are of the size and form of show Auriculas of the present day, with bold yellow eyes, a clear paste, a bold broad margin marked with stripes of colour radiating from the centre. You will observe in the diagram that Van Huysum's Auriculas had distinct geometrical properties; the edge is wanting, and the body colour is broken into rays, but the proportions are precisely such as modern canons would require were such striped flowers now in demand.

It will be observed, then, as the result of a comparison, that in the progress of time the rays have become consolidated into a belt by the withdrawal of the colour inwards, thus leaving a margin of the green colour, which, as we have agreed in supposing, was the sole colour of the Auricula in the first instance before it became a yellow flower on the Alps. I do not insist on this view, for I am content to deal with facts, and the facts appear to demonstrate that the formation of the edge is a late process, and the facts do emphatically suggest that the edge is formed in accordance with a large plan of Nature much more than by any fancy or foible of man. To put the case another way, I would say that the edged Auricula adds a chapter to the history of evolution much more directly than to the history of fashion in floriculture. We have apparently four colours in a show Auricula, but the paste is but an extension and intensification of the meal, and white and grey edges are of the selfsame constitution. The ground colour of the paste is yellow, and the ground colour of the edge is green, and the body colour may be likened to the dark zone on the leaf of a zonate Pelargonium. Van Huysum's flowers show an extension of the yellow to the margin with heavy rays of red overlaid; there is no green traceable; that in the Auricula is a late development, and it has a meaning of some sort apart altogether from our tastes and aspirations as florists.

For a moment let me direct your attention to a few collateral facts. In the old books there are no figures or descriptions of edged Carnations. Those of the times of Van Huysum and Gerard were flaked and spotted, and the spotted flowers were called Pieotees. The origin of the term has been much debated, but the end of the story is that it came from France and was applied to a flower distinguished by spots and blotches. The edged Pieotee is a late growth, and offers an analogy to the Auricula. The colour has undergone a process of concentration and of segregation, taking an isolated position on the very edge of the petals, but always showing a tendency to run inward as a kind of reversion to its original state. The lateness of the origin of the florist Pieotee is a matter, as it appears to me, of peculiar biological interest. Again, we have edged and tipped Dahlias of later origin than edged Carnations, and, like them, fitful in behaviour, the edge tending ever to thrust its colour downward on the face of the florets, and so spoil the flower for the florist's purpose. The lateness of the edged Dahlias accounts for their scarcity and inconstancy; for in truth the Pieotee edge is in process of formation, for in these matters Nature does not hurry herself; if man is impatient she is not, having more time at command than her biped moth that flutters in the flame of its small passions for an hour and then is seen no more.

It appears that flowers do not begin business with edges, but we cannot say they end with them, because we know not what the end may be. It is of great significance that the edge of the Auricula is green; it would perhaps comfort us were it yellow, for then we might consider the colour as an extension from the centre, but the green suggests that the flower is about to change into a leaf, and pass away. We see incipient edges in Pelargoniums, Azaleas, Amaryllis, and other flowers, suggesting that definite edges will be formed in time, but our best examples of flowers that have made up their minds on the matter are the Auriculas, Pieotees, and Dahlias. These are late developments, and they suggest that the formation of the edge is the result of cultivation, and a proper end to aim at in the selection of seedlings and the framing of exhibition schedules.

One of the most interesting discussions amongst the many that have characterised the meetings of the Horticultural Club followed the reading of Mr. Hibberd's paper.

Mr. T. F. Rivers objected to Mr. Hibberd's estimate of the accuracy and excellence of the Dutch painters of flowers, contending that the French artists alone were capable of painting flowers with truth and taste, and had carried the art so far as to accomplish a brilliant success in painting white Roses on a white ground. The contrast between the two schools, he said, need not invalidate the argument founded on the pictures, for it was at least fair to believe that the Dutch painters put upon their canvas the flowers they saw, for their imagination was not equal to the creation of flowers for the purpose. As regards the range of variation of plants of pure descent, he would mention the many new fruits raised by his father, Mr. Thomas Rivers, to which he had himself added in continuation of his father's labours. Take the Peaches for example; they were of pure descent, the Peach had never been hybridised. Certainly there was no known record or evidence of such an occurrence, therefore all Peaches were Peaches *pur et simple*. Yet how various in character, and not only differing in size, season, colour, and flavour, but in the smoothness or otherwise of the skin, for Nectarines were true Peaches derived from the Peach stone, and he had seen both fruits in perfection on the same tree, and even on the same branch. Therefore observation of fruits tended to strengthen Mr. Hibberd's contention that the show Auricula is of pure descent from the Auricula of the Alps, for its range of variations is in no way exceptional.

The Chairman, Mr. John Lee, remarked that he had seen white and black Grapes on the same Vine, and on one or two occasions in the same bunch. The diversity of characters in Auriculas, therefore, does not present so great a difficulty as appeared to many who were unfamiliar with the variations of plants under cultivation.

The Rev. H. H. D'Ombraire remarked that variation in the Auricula was not a property of seedling plants alone, for established varieties, and those the most constant in their several classes, would vary at times. For example, autumnal flowers were often untrue, and a spring truss that rose from the centre of the plant was also liable to play false, so that even if stripes should appear they would not prove variation from the seed; and, consequently, were not necessarily evidences of hybridisation. Mr. Hibberd had placed on the table a pen-and-ink drawing of Hopley's Lord Nelson Auricula, in which the paste was cracked, and that was a common occurrence, and was, perhaps, from the biological aspects of the subject, a variation rather than an accident, more especially as the cracks were in radiating lines, showing how the corolla would separate into five petals were it to be cut down to the tube.

Mr. James Douglas said he had raised an immense number of seedling Auriculas, and had not seen a striped flower amongst them. Mr. Hibberd had probably not taken sufficient note of the difference amongst Auriculas in respect of the amount of meal on the leaves, for while some were loaded others were entirely destitute of meal. This appeared to weaken the argument for pure descent. The variety named Abbé Liszt, which was certificated at the Exhibition of the National Auricula Society, April 26th, was the only first-rate variety out of a hatch of a thousand seedlings raised from seed carefully fertilised from the finest named varieties. But in that thousand there was found the greatest diversity of character, and although only one was worth naming, all were beautiful, and many had strong features of colour and form. As regards the raising of varieties having special character, he would remark that to obtain first-class green-edge flowers was the most difficult of all, but how that would tell in the theory of pedigree he would not conjecture. But he could, perhaps, throw a ray of light on the question of descent, for to raise show Auriculas the seed must be derived from show Auriculas, and to raise Alpine Auriculas the seed must be derived from Alpine Auriculas. In the whole batch of a thousand plants he had referred to as including the beautiful Abbé Liszt, although their characters varied in all imaginable degrees, there was not a single Alpine; for it should be remembered that in an Alpine there is no proper paste, for the natural yellow of the zone surrounding the eye appeared, whereas in a show flower that yellow zone was covered with the white powder that constituted the paste. Another fact bearing on pedigree is that to raise good show selfs we must breed from selfs. [The Rev. H. H. D'Ombraire remarked that seedlings of show varieties often flowered as selfs, to which Mr. Douglas replied that] The selfs raised from edged flowers were invariably bad, having no fixity of character and no quality as show flowers. And yet again, he had been raising varieties for many years from thrum-eyed flowers, and now he had so few pin-eyed flowers amongst his seedlings, that it appeared he had bred out the pin-eyed character from his strain of show flowers. The florists were justified in their preference for thrum eyes, not only on the score of beauty, but in the fact that thrum-eyed flowers were more vigorous than pin-eyed, showing that the short stigma was best for the plant. Thus his own

experiences and observations led him to concur with the essayist in the doctrine that the Alpines and the show flowers were of distinct origin, though it was evident that they were nearly related. It was curious that in a sketch from a picture by Van Huysum, which Mr. Hibberd had placed on the table, the flowers were all pin-eyed, and it was just possible that at the time the striped flowers were in vogue pin eyes were in favour. That the show varieties and the Alpines might be persuaded to hybridise freely was rendered probable by a remarkable seedling shown by Samuel Barlow, Esq., at the National Exhibition, April 26th. This was nothing less than a green-edged Alpine. What was its meaning in relation to pedigree he was not prepared to say, but it appeared to open the way to new sources of knowledge, and was, apart from all that may result from it, a most interesting curiosity.

Mr. Daniel Dewar, of the Royal Gardens, Kew, was not disposed to accept Mr. Hibberd's doctrine in the form stated, for he had, as a cultivator of Alpine Primulas, observed their great range of variation, and would prefer to agree with Professor Kerner in tracing all the forms, show flowers, Fancies, and Alpines to *Primula pubescens*, in which, he felt satisfied, there were all the characters required. For example, in a batch of seedlings of this *Primula*, however carefully raised from isolated plants, the hybridising of which was not to be suspected, there would be the greatest variety of colour in the flowers, and very considerable variety in the leaves. Nor was this surprising, seeing it had been proved by Professor Kerner that *Primula pubescens* was a natural hybrid, and to represent its parentage had been by him designated *Super-Auricula* × *hirsuta*—a parentage that accounted for many of the various characters, as well as the variability of cultivated Auriculas. As for the range of variation, it extended to pure white in one direction, and to the deepest purple in another; and we had the cartilaginous tendency in the leaf and the floral bract, which so characterise the cultivated flower, while these features also are immensely variable. In some instances the bract was of great size, in others it was scarcely perceptible. Mr. Hibberd had thrown aside *Primula Palinuri* as a possible progenitor of the Auricula, but he might yet want it to account for the persistency of the bract. The Auricula of Clusius was no doubt the true *Primula Auricula*, which had gone out of cultivation, comparatively speaking, ere the cultivation of the flower became general; but *P. pubescens* had taken its place, and was at least a possible progenitor of the show flowers. And it was worthy of special remark that *P. pubescens* had immense vitality, for it would live and thrive under the most various and even adverse circumstances. That it had given birth to flowers of very distinct character was well known, and it would do so again and again, reproducing in every possible way the characters of its two parent species. The Primulas severally known as *alpina*, *Reich.*; *helvetica*, *Don*; *hirsuta*, *Vil.*; *microcalyx*, *Lehm.*; *rhetica*, *Gaud.*; and *villosa*, *Ait.*, were but forms of *pubescens*.

The Chairman briefly summed up the main points in the discussion, remarking that such a meeting as the present was the best justification the Club could desire, and he would hope for more of such meetings as the sure means of increasing their numbers. They were deeply indebted to Mr. Shirley Hibberd for the paper he had placed before them, and to Mr. Douglas and Mr. Dewar for their practical and valuable comments upon it. He moved that their best thanks be given to those gentlemen for the intellectual entertainment they had afforded.

Mr. Hibberd acknowledged the compliment, remarking that he had kept clear of the pictures and descriptions of the sixteenth century botanists, for the sufficient reason that as they had not seen the florists' Auricula they could not describe it, and all that has been said about Matthioli, Clusius, and the rest was beside the question. Those who relied upon such books for evidences of the origin of the florists' Auricula had not grasped the question, which was one altogether apart from the reintroduction of the wild Auricula to gardens. If he appeared to damn the sixteenth century botanists, it was not because he failed to appreciate their labours, but because they had been absurdly cited for evidence of things they had not seen, and that were actually non-existent when their books were printed. He concluded by moving a vote of thanks to the Chairman, and this being carried by acclamation the meeting separated.



WE learn that the Council of the ROYAL HORTICULTURAL SOCIETY have resolved not to hold the proposed Chrysanthemum Show and Conference which had been fixed for November 8th and 9th next.

— ORCHIDS AT WEYBRIDGE.—Mr. G. F. Wilson of Weybridge writes that his hardy and half-hardy plants now take up all his available time, therefore his collection of Orchids will be sold at Stevens's on Wednesday, 25th May.

— ON Wednesday in last week the inhabitants of Astwood Bank presented to Mr. J. HIAM a handsome microscope in a neatly finished case.

Mr. Hiam has taken great interest in the local horticultural and amateur gardeners' Society, and as a naturalist has devoted much attention to the insects that attack fruit trees, notably in connection with canker. Mr. Hiam, who is evidently greatly respected in his district, is an occasional contributor to these columns.

— WE learn from the *Western Times* of the 11th inst. that *PASSIFLORA CONSTANCE ELLIOTT* was raised from seed of *Passiflora coccinea* at Newton Abbot by Mr. Fuller, and was the only plant with white flowers obtained from numerous seedlings raised, and it was so little esteemed that the moderate price of 3s. 6d. was the value placed upon it.

— A CORRESPONDENT writes—"When travelling in Germany recently I visited many gardens where CACTACEOUS PLANTS are made a specialty, but the best collection I saw was that of H. Hildmann, Oranienburg, near Berlin. It was simply wonderful, as Herr Hildmann is not only a good cultivator, but he has a botanical knowledge of Cacti, and writes a good deal about them in German periodicals. His plants are very accurately named, and the collection is altogether a remarkable one."

— MR. WM. WILKINSON, The Gardens, Elloughton Lodge, Brough, writes respecting *ROSES LA FRANCE* AND *NIPHETOS*—"I have been much interested in the chapters on "Rose-growing for Beginners" from the pen of Mr. D. Gilmour, jun., but I was rather struck with his unfavourable comparison of Tea and H.P. Roses on page 369. Has Mr. Gilmour grown *La France* under glass? In our case *La France* is more free-flowering than *Niphetos* both grown under the same conditions, and both do well here; true, the two Roses differ in colour, and both are useful in their respective classes. We have gathered some blooms of *La France* that would be no disgrace on the exhibition table. Another Tea Rose in every way worthy to be added to Mr. Gilmour's list is *La Sylphide* for growing under glass."

— A CORRESPONDENT writes:—"The annual meeting of the PRESTON AND FULWOOD HORTICULTURAL SOCIETY was held at the Three Legs of Man Hotel, Preston, on the 14th inst. The balance-sheet and report for the past year being submitted to the members. It is gratifying to note that the balance in hand with which to commence the current year is £14 14s., showing an increase of over £7 on that of the previous year. A hearty vote of thanks was accorded Mr. A. Waters, gardener to J. Eccles, Esq., Farington House, for a good bunch of Lady Downe's, which was good in colour and had been well preserved, also a bunch of Black Hamburgh Grapes in excellent condition for this period of the year. Mr. C. Parker contributed an extra strong spike of flowers of *Dendrobium thyrsiflorum*. A vote of thanks to the Secretary and Treasurer brought the meeting to a close."

— THE remarkably fine specimen of *RHODODENDRON VEITCHIANUM* plant, grown by Mr. W. Hannah, gardener to T. Wilson, Esq., Oakholme, Sheffield, has again flowered very finely. A little more than a week ago it had 180 trusses, mostly of three flowers each, and covered a space of nearly 100 square feet of wall surface with a mass of pearly white flowers of great size, and deliciously scented. In the same house are also a number of others of the best varieties of greenhouse Rhododendrons flowering freely, one specimen of Lady Alice Fitzwilliam, in an 11-inch pot, carrying twenty-one trusses of large waxy white flowers, each 5 to 6 inches in diameter. This grand variety was introduced a few years since by Messrs. Fisher, Son, & Sibray of Handsworth Nurseries, Sheffield.

— GARDENING APPOINTMENTS.—The following have been recently made through Messrs. John Laing & Co., Nurseries, Forest Hill, S.E.:—Mr. H. Brown, as gardener and bailiff to Jas. Brand, Esq., jun., Sanderstead Court, Surrey. Mr. H. Gough, as gardener to Professor Adams, The Observatory, Cambs. Mr. T. Cotes, as gardener to Mrs. Walter, Redlands, Kent. Mr. G. Wilson, as gardener to R. H. Ainsworth, Esq., J.P., D.L., Smithills Hall, Bolton, Lancs. Mr. G. Johnson, as gardener to W. W. Burnett, Esq., East Dene, Kent. Mr. G. Aylott, as gardener to J. Ramsey, Esq., J.P., D.L., Gidea Hall, Essex. Mr. Hill, as gardener to George Kem, Esq., Manor Villa, Essex; and Mr. Biggs, as gardener to F. D. Frost, Esq., The Maples, Kent.

— RAINFALL IN IRELAND.—A telegram from Dublin last Tuesday night says, "The much-needed rainfall has come at last. There has practically been no rain in Ireland for more than a couple of months,

and the result has been that although there has been a good seed time, there has been no vegetation. Rain began to fall about three o'clock this afternoon and continued during the evening."

— **FRUIT FARMS.**—"They go in for big farms in Australia," says a daily paper. "Two brothers named Chaffey have just taken a holding of 250,000 acres, along the Murray River, for 'fruit-growing purposes.'"

— **IT** has been estimated that the value of **AMERICAN APPLES SENT TO ENGLAND** last year amounted to 3,500,000 dollars, or about £700,000; of these Canada contributed 451,000 dollars worth.

— **HARDY FLOWERS.**—Mr. W. A. Cook sends the following note on hardy plants in flower:—"Many beautiful flowers are now peeping through our herbaceous borders, such as the dwarf Phlox setacea Vivid, Phlox amœna, Phlox atropurpurea, Aubrietia violacea, Aubrietia deltoidea, Anemones of sorts. Anemone pulsatilla has been in flower for months, and in about a week we shall have twenty to thirty Saxifragas in full bloom; the beautiful S. Wallacei is most striking. Then we have a host of Auriculas, Diadem and Lord Lorne being conspicuous. Primula rosca has been in flower a considerable time, also Primula purpurea, P. platypetala, and others equally good; Polyanthus The Bride is a very good variety. We have many good gold-laced varieties from seeds. Lunaria biennis (Honesty) makes a grand plant in a cool shady border. Of Narcissus, the last are now flowering freely. Tulips of all shades are in bloom splendidly, and after such a long winter I have never seen them looking better. Myosotis dissitiflora looks very pretty round the edges of two large beds of yellow Wallflowers. Silene ruberrima and compacta are flowering well. East Lothian Stocks, which were planted out about six weeks ago, are sweet. Pansies and Violas also are commencing to flower freely. Of shrubs there are some already in flower, such as Spiræa Thunbergi, Almond and Peach (double flower) are all in full bloom. Cerasus communis, Berberis, Prunus Pissardi in full bloom, and the beautiful Service Tree will be out in a few days. Pyrus japonica is already in flower."

— **DROPMORE** has long been celebrated for its magnificent Conifers and other trees, and closely associated with their history was the equally well-known veteran gardener, PHILIP FROST, whose death we have now to announce. Mr. Frost was born on July 10th, 1804, at Moreton Hampstead, Devonshire, his father being subsequently employed by Lord Grenville at Boconnoc, Cornwall, and it was there that Philip Frost commenced his career under the forester. In 1822 he proceeded to Dropmore Gardens, and after a short service at Ashted Park, Epsom in 1826, he returned to Dropmore, where he remained until 1828. He spent some time at Caen Wood, and afterwards at the Chelsea Botanic Gardens as foreman, leaving there in 1833 to take charge of Dropmore Gardens, where he has remained ever since, living to see Deodars and other trees planted by himself attain the height of 60 feet or more. Mr. Frost was presented by his friends with a silver cup, value £25, in 1872, and a small annuity, as some indication of the respect in which he was held as a hearty, honest, independent man. He was in his eighty-third year at the time of his death.

— **FOR** many years it has been customary to have the flower beds near the broad walk in the Royal Gardens, Kew, bare until filled with the ordinary summer plants. This season, however, **HARDY BULBS** have been freely employed with excellent results. Hyacinths, Tulips, Crocuses, &c., have been planted in numbers, and as some taste has been exercised in the association of the colours, the effect is very pleasing.

— **MR. JOSEPH MALLENDER** sends his monthly SUMMARY OF METEOROLOGICAL OBSERVATIONS AT HODSOCK PRIORY, WORKSOP, NOTTS, FOR APRIL, 1887:—Mean temperature of month, 43.4°. Maximum on the 18th, 63.1°; minimum on the 18th, 24.6°. Maximum in sun on the 24th, 119.4°; minimum on the grass on the 17th, 16.4°. Mean temperature of air at 9 A.M., 45.1°; mean temperature of soil 1 foot deep, 44.2°. Nights below 32° in shade, 12; on grass, 21. Sunshine: total duration in month, 153 hours, or 37 per cent. of possible duration. We had one sunless day. Total rainfall in month, 1.01. Rain fell on thirteen days. North and easterly winds have been very prevalent; average velocity, 11.3 miles per hour. The velocity exceeded 400 miles on one day, and did not fall short of 100 on any day. Approximate averages for April:—Mean temperature, 46.4°; rainfall, 1.66; sunshine (six years), 128.2. April was colder than of the last eleven years except 1879, and drier than any except 1881, brighter than any

of the last six. The nights were especially cold, and the daily range of temperature great. Vegetation very backward. Black Currants very much damaged by the cold, and Gooseberries slightly cut. Apple, Pear, Plum, and Cherry bloom very abundant.

— **THE GARDENERS' ORPHAN FUND.**—Mr. C. Penny of Sandringham sends us a letter in which he appeals strongly to the gardeners of England to give their support to this fund, and to give it promptly, instead of "waiting to see what others do." He remarks that "even a subscription of 5s. annually from gardeners generally would enable grants to be made at once, and subscribers would soon see how the money was expended and the good it was doing." Mr. Penny further hopes that "gardeners will canvass for the fund with a will, and they will surprise themselves and others with the good results that will be the outcome of their efforts." We may add that nearly 600 persons have promised donations and subscriptions, amounting to upwards of £560. This sum is certain to be considerably increased when the trade generally follow the excellent example of the few early donors who have given their support to the scheme. As a proposal will be made at the meeting, to be held next week, to publish a list of subscribers, it is hoped that all persons who are willing to support the fund will send in the printed forms they may have received, or communicate with Mr. Barron, Chiswick, without delay. It is quite expected the Gardeners' Orphan Fund will be worthy to rank with other valuable institutions in the horticultural world, and supplement them in affording help to those of the helpless for which no special provision has hitherto been made. Gardeners in various parts of the country and gardeners' societies can share in making the fund as great a success as it deserves to be in the manner indicated by Mr. Penny, and district co-operation is desired by the central provisional Committee.

— **MR. G. J. SYMONS**, in his "Monthly Meteorological Magazine," for May, gives this note on **REPORTS OF SEVERE WINTERS AND VEGETATION**:—"We picked up, a week or two since, from a Paris bookstall, the work by M. Baltet ('Société Nationale d'Agriculture de France. De l'action du Froid sur les végétaux pendant l'hiver, 1879-80.—J. Tremblay, Paris, 1882'), and on our return to London we found awaiting us Mr. Henslow's report upon the same subject ('Journal of the Royal Horticultural Society. The First Report. On the effects of the severe frosts on vegetation during the winters 1879-80 and 1880-81.' London, 1887.) The coincidence in time was remarkable, considering that nearly eight years have elapsed since the frost to which they refer, while the fact of both being 8vo., and one occupying 340 pages and the other 338, is a curious addition to the parallelism. It will be noticed, however, that the French report was published five years before the English one, and yet Prof. Henslow does not appear to have seen it. The style of the two books is as dissimilar as possible. M. Baltet's memoir was submitted for examination to M. J. A. Barral, and an excellent epitome is given in M. Barral's report presented in August, 1881."

— **AT** the BATH AND WEST OF ENGLAND ASSOCIATION'S EXHIBITION to be held at Dorchester, May 30th to June 3rd, the horticultural department, as usual, is under the superintendence of the Hon. and Rev. J. T. Boscawen. The display of Orchids is expected to be an exceptionally good one, a cup (or money) value £10 is offered for the best group of Orchids, and £5 for the best specimen Orchid in the Show. Prizes of £3 and £2 are also offered for collections of fruit (not less than three exhibitors), £3 and £2 for collection of vegetables, with £2 and £1 for the best dishes of thirty Strawberries. The fruit and vegetables can be staged up to 10 o'clock Tuesday morning, and removed on Thursday evening. H.R.H. the Prince of Wales is expected to visit the Exhibition on Thursday. All inquiries should be addressed to the Hon. and Rev. J. T. Boscawen, Lamorran, Probus, Cornwall.

— **TAKING** the condition of the trees at Chiswick as typical, **FRUIT PROSPECTS** are at the present time satisfactory. The Pear blossom is fading and the fruit setting. The handsome pyramids have been very beautiful, and one of the late-blooming Pears, Henri Capron, is the most beautiful of all, the flowers being very large, and many containing six or more petals. It is not easy to imagine any pleasanter ground tree more beautiful than the 12 feet high pyramid of this Pear. Apple blossom is expanding freely and is very fine, perhaps the finer through the trees not being densely covered, though it is more than sufficiently plentiful for an abundant crop of fruit. The trees worked on the different kinds of stocks and grown in a natural manner are models in their way, those of such floriferous varieties as Stirling Castle, Cellini,

Duchess of Oldenburg, and some others being, as a rule, better on the Doucin than the French Paradise, as combining free growth with equal productiveness. It is noticeable that the influence of the different stocks is in a measure lost in a few years on the Blenheim Pippin, all the trees in a plantation being practically similar in size and productiveness. The horizontal cordons as margins to the central walk are extremely attractive, Braddiek's Nonpareil being a striking one by its clusters of large blossoms. The bloom is fully a fortnight later than usual, yet cannot be regarded as absolutely safe in a changeable climate.

— THE monthly meeting of the BELGIAN HORTICULTURISTS was held in Ghent last week, those present being MM. Van Coppenolle, Jules Hye, L. Desmet-Duvivier, A. Baudu, Jules Closon, Ad. Rosseel, and F. Hiersman (Colchester) who was visiting Ghent, and was invited to serve on the Committee, M. F. Desbois presiding, and M. Cuvelier was Secretary. Certificates of merit were awarded for *Azalea indica* seedling No. 2 from M. A. De Kneef; *Azalea indica* Miss E. Jarrett from M. Louis Van Houtte; *Boronia heterophylla* from M. Aug. Van Geert; *Nephrolepis rufescens tripinatifidum* from the last exhibitor; *Odontoglossum Halli leucoglossum*, *Odontoglossum Macsereeli*, and *Miltonia vexillarium* from MM. Edm. Vervaeet et Cie.; *Odontoglossum Halli* from M. Maurice Metdepenningen; *Anthurium Andreanum sanguineum* from M. Louis Desmet-Duvivier; *Pandanus Desmetianus* from MM. F. Desbois et Cie.; *Aphelandra Louisa*, *Philodendrum Corsianum*, *Begonia Louise Closon*, *Phytolacca purpurascens* fol. var., and *Impatiens Hawker* from MM. Jacob-Makoy et Cie.; *Azalea indica Pharaïde*, *Azalea indica Jean Van Eyck*, *Azalea indica Princesse Clémentine*, and *Azalea indica Ami du cœur* from M. Joseph Vervaeene; *Lycaste Skinneri alba* from M. le Comte de Kerehove de Denterghem; *Spiraea japonica* fol. atropurpurea from MM. Fr. Desbois et Cie. Cultural certificates were awarded for *Masdevallia Houtteana* from MM. Edm. Vervaeet et Cie.; *Rhododendron Gibsoni* from M. Bernard Spac; and honourable mention for *Masdevallia Denisoni* from M. A. Van Geert; *Odontoglossum Alexandre*, *Cattleya Mossiae*, *Laelia elegans*, *Cypripedium Druryi* from MM. Edm. Vervaeet et Cie.; *Dracaena norwoodiense* from M. Louis Desmet-Duvivier; *Nidularium Innocenti* fol. aurea var. from l'établissement Ste. Dorothée; and *Laelia Boothiana* from M. Jules Heye-Leysen.

FRITILLARIES.

THE Snakeshead Fritillary, *Fritillaria meleagris*, is one of the most attractive flowers that bedeck our valley meads during the months of April and May. It is not, however, one of those plants that will flourish anywhere at the will of the cultivator; but under cultivation, to insure success, it must be provided with similar situations and conditions that have indisputably restricted its growth to certain localities for centuries. Wherever the Fritillary finds a genial home there it establishes itself and becomes permanent. It is decidedly a moisture-loving plant, and from the shape of its tessellated or chequered flowers it has received a generic name that has for ages associated it with the dice box; the appearance of its markings, too, have been likened to that of a chess-board.

It rarely happens that the flowers of this plant are as conspicuous as they happen to be at the present time, for generally the early growth of the grass effectually conceals them, although they may abound unobserved within a few yards of the spot occupied by anyone in search of them. This season, however, owing to the sparse growth of the grass, they are enabled to raise their blooms above it, and present a sight that can be seldom witnessed. The backward state of vegetation this season, too, has contributed to the disfigurement of great numbers of them, which it is possible not to observe until they have been plucked, for the tender leaves of the Hawthorn that ordinarily, long ere this, provide so much food for our feathered songsters, have as yet scarcely made their appearance, and so to compensate for this and feed on the nectar that the Fritillary supplies, they have with their little beaks torn away a portion of many an unexpanded flower; but ere this appears in type the Hawthorn may be clad not only with leaves, but with flower buds too, that in a short space of time may envelope many a hedgerow with garlands of delicately tinted fragrant flowers. Occasionally two blossoms may be seen on one stem, but they are almost invariably borne singly; and although the chequered light and dark reddish purple-tinted flowers predominate, there is not unfrequently a fair sprinkling of white selfs which are most effectively poised on slender stems a few inches above the grass.

The majority of the plants do not exceed a foot in height, but the bulbs that produce them are, in many cases, considerably more than this distance below the surface; and herein, together with their diminutive size, lies their security from many a would-be plunderer. Most fittingly here Nature doth prevail. If the Snake-head can be associated with any one place more than another in Great Britain, or may justly be entitled

to a place in the memories of many who have dangled its flowers in their fingers simply because its uncommon appearance arrested a passing curiosity, or, perchance, it may be, have plucked handfuls of them to embellish a room where hard reading was more or less a pleasing toil, it must be admitted that Oxford is *facile princeps*. It is there that the Fritillary luxuriates in more than one college ground. Christ Church meadow, at the lower end, is full of them; Magdalen College meadow, although of smaller proportions, is, in a sense, a Fritillary bed; and the fields on either side of the river Isis, between Kennington and Illey, furnish the homes of the flower-loving artisan or labourer at this season of the year with a bunch, or it may be a bouquet, of field flowers that tiny hands may have helped to gather without having trespassed too much, and which possibly may be a source of indescribable pleasure in many a humble home.

To what extent the bulbs of these plants suffer, if they do at all, by what may be aptly described as a wholesale gathering of their flowers, cannot be summarily stated, but the opinion may be accepted in reference to this point, that they suffer no appreciable injury, more especially if the stalks are severed above the ground and not ruthlessly pulled up from a distance of several inches below the surface. When fairly gathered the bulbs would certainly be affected to the same degree as those of any other similarly constituted plant, and it is well known by the most intelligent cultivators that by gathering the flowers of many bulbous plants the bulbs are rather strengthened than weakened by the process; and the duration of the cut flowers under proper treatment would not be less than if the flowers were allowed to remain on the plant. The *Gladiolus* (a corm) and the *Lilium auratum* are notable examples of this; but this observation has a wider application than may be generally imagined by those other than professional growers. On the other hand, were the flowers allowed to remain and produce seed the bulbs would assuredly suffer to a much greater extent than possibly is imagined by those who are most apprehensive lest that by repeatedly gathering them eventually it may lead to their partial extermination. It should be remembered that in the case of meadows that are known to have produced them more than half a century ago—meadows easily accessible to the public—and where the Fritillary flowers have been year by year systematically gathered, it cannot now be urged that there they have at all diminished in number; and, further, it may be asked whether, after allowing the bulbs to become weakened by the process of "seed-setting," they would in any but strictly grazing meadows ever survive the necessary operation of mowing? For ages the Snakeshead has adorned the Oxford meadows, and there need be but little fear that they will continue to do so.

Those who are unacquainted with this flower will find it figured on the first plate in "Baxter's British Flowering Plants," and there is no difficulty in obtaining bulbs of them in the autumn through the ordinary sources, as they are in certain places cultivated largely for sale, and are moreover inexpensive to purchase. Of course, they cannot be expected to flourish in unsuitable situations unless special attention be given to their natural requirements. They can nevertheless be successfully cultivated in ordinary flower pots, provided that during their growth the pots are placed in saucers that are kept regularly supplied with water; or, when planted out in borders, by submerging spacious shallow earthenware vessels about 18 inches below the surface of the soil and planting the Fritillary bulbs a few inches deep immediately above them. Groups of the somewhat uncommon Snakeshead may, in the ordinary course, more than satisfy the expectations of many who may have already abandoned the hope of ever growing them successfully.—OXONIENSIS.

[Our correspondent sent us several bunches of flowers representing their great abundance in the district to which he refers in his interesting communication.]



ORCHIDS AT HOME.

THE notes in the articles on "Indian Experiences" are just what an Orchid grower requires. If the natural mode of growth is known the treatment in disease is half combated. I have heard persons that have seen the very Orchids they have collected grown artificially say they never grew like that when they collected them. Very true. What is the use of cultivation if we cannot do something to bring what is cultivated to our ideas of beauty? On the other hand, my belief is that many of our imported Orchids are killed by too much kindness. Plants may bear a certain degree of extra living, and seem to prosper and improve; but it may be prejudicial, and, like over-feeding in human beings, be productive of disease and death. If we know the natural habits and habitats the remedy is more easily applied.

I think that gardeners do not pay enough attention to regularity of temperature. I have grown Orchids for some years, and I take the temperature night and morning and strike the average at the end of the year. My annual average is 73° and 63°. I have never had it above 90° but twice, and never below 58° during the last five years, and my Orchids grow

and flower well. I grow most *Dendrobiums* on cork, and I fasten on the cork pieces of cocoa-nut fibre mat, and plant the Orchid on the matting with copper wire.—SPERO.

ORCHIDS AT SHEFFIELD.

IN the Orchid houses at Oakholme, Sheffield, are now flowering freely some fine healthy plants of *Cattleya citrina*. The plants are vigorous, with large dark coloured foliage; the flowers also are large and finely coloured. Mr. Hannah, the able gardener there, grows them all the year round in the flower house on blocks suspended near the roof, in a position where they obtain a moderately free circulation of air, with a temperature in winter and spring of 50° to 55°. He believes this to be the position best suited to them, as their progress has been most satisfactory. A plant of *Odontoglossum Coradeni* was very fine, with eleven flower spikes. Other good Orchids in flower were a grand specimen of *Vanda suavis*, three large branching flower spikes; *Cymbidium eburneum*, an exceptionally good variety; *Dendrobium Ainsworthi* roseum, and *Cattleya Skinneri*. *Odontoglossum vexillarium* is throwing up numerous flower spikes.

A few choice specialties now flowering at Westbrook are *Odontoglossum Alexandræ* var. *Souvenir du Prince Leopold*, for which Messrs. Sander obtained a certificate at South Kensington about three years since. This is one of the finest varieties known, with very large and stout broad-petalled flowers, waxy white, suffused with blush, and lightly spotted crimson. It has a strong spike carrying eleven flowers. *O. polyxanthum*, a very fine variety, with nine flowers. *O. Schillerianum*, two plants, a singular-looking somewhat small-flowering variety, curiously spotted throughout, with small chocolate spots on a yellow ground. *Vanda Denisoniana*, carrying three flower spikes, pretty cream-coloured flowers, each 2 inches across, very strongly perfumed. *Dendrobium nobile elegans delicatum*, a magnificent form of this grand old Orchid, having flowers equalling in size and substance the best varieties of *D. Wardianum*, and very delicate in colouring. The plant is a strong one, carrying twenty-three flowers. Also *Cypripedium niveum*, a very large and fine variety, delicately spotted.

MR. B. S. WILLIAMS' ORCHID EXHIBITION.

THE annual display of Orchids in Mr. B. S. Williams' Victoria and Paradise Nurseries, Upper Holloway, is now regarded as one of the leading events of the season, for the extensive resources of the establishment are concentrated on its production, and those who are familiar with these nurseries know quite well what a wealth of plants there is to draw upon. Valuable hybrids, rarities, and choice varieties, together with the rank and file, the useful members of the Orchid family, are all duly represented, a kind of conspectus of their beauty and range of variation being afforded by such a show maintained for over a month at this time of year. Scarcely any season is without its orchidic attractions, but in May and June we have a greater number of distinct forms in flower than at any other time; and though it seems that May will soon lose its claim to be considered "the month of flowers," the poets talk about it as unquestionably the month for Orchid flowers. Mr. Williams devotes the large span-roof house, usually occupied with Palms, Tree Ferns, &c., to the Orchid Show (fig. 69), and as it is 100 feet long and 22 feet wide it affords ample scope for the exercise of taste in arrangement. Upon the left hand side, entering from the road, is a broad shelf, and upon this is formed a beautiful bank of flowering plants, most diversified in forms and colours, from the richest to the most delicate shades, with sufficient graceful Palms and Ferns to avoid all approach to formality, the margin consisting of *Selaginellas*, *Tradescantias*, *Panicum variegatum*, and *Isolepis gracilis*. On the opposite side of the path is an imposing bank of fine-foliage plants, and in front of these, or suspended from the roof, are numerous other Orchids which contribute materially to the display. Brilliant as the effect is now, it is evident from the large numbers of plants coming into flower in the other houses that it will be easily maintained in perfection for some weeks to come.

Taking the plants in the order they are arranged, without attempting to classify them, will better indicate both the variety of effect produced and the method adopted, though necessarily in this brief description many must be passed unnoticed. A healthy plant of *Dendrobium Falconeri* in a basket is notable for the large size and rich colour of the flowers; *D. suavis* is also represented by a fine specimen on a raft nearly a yard square and bearing twelve spikes of flowers. Of *Vandas* tricolor and *suavis* there are several superb varieties, of the latter one has two spikes with ten flowers each. The yellow fragrant *Cattleya citrina* is freely employed with good effect. *Oncidium Marshallianum* is charming with numbers of large graceful panicles of golden flowers, most useful for disposing in groups. *Burlingtonia fragrans* and *Broughtonia sanguinea* attract attention side by side, and the old but still favourite *Lycaste Harrisonæ* has abundance of flowers. *Cattleyas Mendeli* and *Mossii* are handsomely represented, the flower large and richly coloured, some of the varieties being exceptionally fine; the lovely *Cattleya Skinneri* is also in grand condition, one plant having eight racemes with nine or ten flowers each, showing at once its free character and rich colour. *Oncidium concolor* yields a wealth of clear yellow flowers, one plant in a 3-inch pot having five racemes. The brownish yellow crisped *Oncidium lamelligerum* has one of its long racemes after the style of *O. macranthum*, and the stately *Epidendrum Wallisi* has twenty large yellow and brown spotted flowers. *Cattleya Lawrencei* shows the free character admirably, the flowers being very numerous and of excellent colour; it will indeed take a place amongst the most useful *Cattleyas*. The white corymb-like scapes of *Calanthe veratrifolia* are very notable rising above dwarfer plants, and it can be employed very effectively in

this way. *Trichopilia suavis* and *Miltonia Warscewiczii* are two old favourites that must not be passed unnoticed, and then we come to a third old favourite, *Oncidium sarcodes*, a useful Orchid in any form, but such a variety as that shown, with two large dense panicles of highly coloured flowers, is most effective.

Lælia purpurata is one of the specialties at Upper Holloway, and there are already some fine varieties in good condition, though many had been dispatched to Dresden, and there are scores of others to expand. It is an exceedingly handsome Orchid, the flowers possessing a richness that is scarcely equalled by the best *Cattleyas*, while the contrast between the lip and pure white sepals in many varieties adds still more to their charms. Of *Odontoglossum Rossi majus* the plants are innumerable, all contributing to the effect, while near some good specimens is a beautiful example of *Dendrobium Devonianum*, its long, slender pseudo-bulbs bearing wreaths of delicately tinted flowers. The late-flowering *Calanthe Sanderiana*, of which Mr. Williams holds the stock, is in capital condition, the flowers having remarkably rich crimson lips. The next, *Cypripedium ciliolare*, and the bold, large-flowered *C. Lawrenceanum*, constitute, with the white *Dendrobium Dearei*, the indispensable and handsome *D. Wardianum*, *Lælia elegans*, *Cattleya Skinneri*, and *Cymbidium Lowianum*, another pleasing group. The orange scarlet *Lælia cinnabarina* and *Ada aurantiaca* supply bright and welcome shades of a colour that is rather scarce in Orchid flowers. *Cattleya intermedia* has five racemes of five flowers each, sepals and petals pure white, the lip tipped with crimson. The dark form of *Cypripedium Boxalliatratum* contrasts well with the white *Dendrobium infundibulum*; *Odontoglossum sceptrum*, *Lycaste Skinneri*, *Dendrobium crassinode*, and the magnificent *Lælia purpurata Brysiana* forming another pleasing combination. *Odontoglossums Alexandræ* and *Pescatorci* are, of course, duly represented by fine varieties, *O. cirrhosum*, *O. gloriosum*, and *O. luteo-purpureum* being numerous and well flowered. Amongst the *Masdevallias* are several grandly coloured forms of *M. Harryana*, but *M. Veitchiana grandiflora* is perhaps the most remarkable of all, one plant having fourteen flowers, each 7 inches in diameter from tip to tip of the upper and lower sepals. The yellow *Anguloa Clowesi*, the curious *Maxillaria luteo-alba* (3 feet in diameter and bearing twenty flowers), the graceful purple *Bletia Shepherdii*, *Miltonia spectabilis* *Tolliana* (a fine variety, with the lip heavily veined with crimson), *Cattleya Acklandiæ*, *Odontoglossum mulus*, and *O. Andersonianum*, are all noteworthy, but cannot be referred to in detail, though we must not omit the handsome *Cypripedium graudæ*, which has two large flowers, the petals over 10 inches long. Some other flowering plants are employed in the group, *Imantophyllums*, and *Anthurium Schertzerianum* being especially fine, while plants of the new *Gloxinia Alfred Outram*, a brilliant variety, the flowers scarlet margined with white, are most effective.

Most of the other houses are attractive now. The fine collection of Ferns is in excellent condition; the various Orchid houses contain hosts of plants coming into flower; the Heath and hardwooded house includes a number of charming free-flowering plants, too much neglected in gardens now, a conservatory being gay with *Azaleas*, *Lilacs*, *Lilium candidum*, *Amaryllises*, and *Imantophyllums*. Then in the cool houses are *Masdevallias* and *Odontoglossums* in abundance, while in the treasure houses, where the novelties are increased and prepared for distribution, is a collection of hybrids and rare species of *Cypripediums* of exceptional value, to the formation of which Mr. Harry Williams has given much attention in recent years.—V.

THUNIA MARSHALLI.

A NUMBER of plants of a fine variety of this beautiful Orchid are now flowering freely at Westbrook, Sheffield. They have been grown rapidly, and are exceptionally vigorous. Mr. Pidsley, the gardener, tells me they were repotted and started on the 11th of February, and the first flowers opened on May 1st. Most of the old pseudo-bulbs made two strong breaks each, and have matured into growths 18 inches to 2 feet long, each bearing a spike of from eight to ten flowers. He grows them upon a shelf near the glass in the East Indian house, where they obtain plenty of light and air with exposure to the sun, and syringes them daily.—W. K. W.

[A flower of *Thunia Marshalli* sent with this was very fine, pure white except the orange blotch in the lip.]

WISCONSIN ORCHIDS.

WRITING in the "American Gardeners' Monthly," Mr. J. H. Dunlap, Milwaukee, Wisconsin, has the following on the culture of Orchids native to the United States, which may be suggestive to amateurs in this country who are trying to increase their stock of hardy Orchids. "In order to grow them well, and insure success, it will be necessary to select a rather shady border, and dig it out to a depth of 18 inches, putting a layer of old wood at the bottom. Cover up the wood with a load of moss, found in all Tamarack swamps, and fill up the bed with soil from a reclaimed swamp. Leave a place at one end to be made entirely of moss, for there are some that will grow in nothing else. The next thing is to collect the plants. This would not be difficult to anyone living in Milwaukee, as many of them could be found within the city limits, and all of them within a few miles, excepting *Calypso borealis*. The first up in the spring is *Orchis spectabilis*. This fragrant beauty is to be found anywhere in shady woods, where the soil is rich and moist. *Arethusa bulbosa* and *Pogonia ophioglossioides* grow in moss and nothing else, so keep them in that part of your bed that is prepared for them. They are very beautiful when in quantity. *Calopogon pulchellus* grows in rich black soil, and far exceeds in beauty many of the tropical Orchids



Fig. 69.—MR. B. S. WILLIAMS' ORCHID HOUSE.

that are grown by Orchis growers. The Habenarias require various kinds of soil. The following grow on loamy soil: *H. orbiculata*, *H. Hookeri*, *H. leucophæa*, and *H. lacera*. But the most desirable for border flowers are *H. fimbriata*, *H. psycodes*, which are seldom equalled for beauty and fragrance. They require moist, rich black soil. The other species growing here are *H. virescens*, *H. viridis*, *H. hyperborea*, and *H. dilatata*. They are all fragrant, but of no beauty. *Calypso borealis* is very scarce in this State, and if you can procure it, plant it in a box of moss by itself. It must never be dry or frozen. It is very curious to see it make its next season's blooming bulbs after it has done flowering. *Cypripedium parviflorum* grows in loamy soil; *C. pubescens* grows in shady woods; *C. spectabilis* grows in wet Willow marshes, but does fine in any good garden soil; *C. acaule* and *C. arietinum* grow in moss; *C. candidum* wants to have the full influence of light and heat, a regular prairie plant growing in large quantities near swales. *Spiranthes cernua* and *S. latifolia* grow in large quantities in rich black muck. This includes all the Wisconsin Orchis worth cultivating for their beauty and fragrance. We have *Goodyera repens*, *Listera cordata*, *Microstylis monophyllus*, *Liparis liliifolia*, *Aplectrum hyemale*, but they are of no great beauty and will only be interesting to botanists. The above lists are well worth the labour and attention of any amateur."

BATH SPRING SHOW.

MAY 11TH.

THIS may be recorded as one of the best exhibitions yet held in Bath, and as the weather was also fairly propitious there was a capital attendance of visitors. There were three large tents and one small one well filled with plants of all kinds, as well as cut flowers, fruits, and vegetables in season, the competition being keen throughout.

Azaleas were usually well represented at this meeting, and the season being rather backward none of them had lost their freshness. The premier prize for twelve varieties was won by C. Gardiner, Esq. (W. Long, gardener), who had grandly flowered pyramids ranging from 4 feet to 6 feet in height, the best of them being *Duc de Nassau*, *Magnet*, *Criterion*, *Stella*, *Guillaume*, *Stanleyana*, *Perryana*, and *Charmer*. Colonel Landon (C. H. Keel, gardener), also had some fine pyramids, and was awarded the second prize. Mr. J. Cypher, Cheltenham, was easily first for nine Azaleas, these including very fine plants of *Criterion* and *Duchesse de Nassau*; and Mr. W. C. Drummond took the third prize. The best six varieties were shown by Mrs. Doherty (H. Jones, gardener), among these being freely flowered specimens of *Souvenir de Prince Albert*, *Duc de Nassau*, and *Grande Duchesse de Bale*. Major Clarke (G. Tucker, gardener), was second, and T. Jolly, Esq., third.

Stove and greenhouse plants were plentiful and good. Mr. J. Cypher commenced the season in very good style, being easily first for twelve flowering plants, and which consisted of *Ericas ventricosa* *magnifica*, *depressa*, and *Cavendishiana*, and all large and beautifully flowered; *Pimelea spectabilis*, about 6 feet through and crowded with flower; very large freely flowered Azaleas *Cedo Nulli* and *Magnificent*, *Pimelea Hendersoni*, *Anthurium Schertzerianum*, and *Anthurium Schertzerianum* Cypheri, extra fine; *Hedera tulipifera* and *Dracophyllum gracile*. Mr. H. James, Norwood, took second place with smaller but beautifully flowered specimens, the most noteworthy of which were *Anthurium Wardianum*, with twenty-two large spathes, *Darwinia fuchsoides*, *Aphelaxis macrantha*, and *Erica Lindleyana*. C. Gardiner, Esq., was awarded the third prize for good plants, among which, *Ixora Williamsi*, *Anthurium Schertzerianum*, and *Azalea Souvenir de Prince Albert* were most conspicuous. In a corresponding class for nine varieties the first prize was well won by E. E. Bryant, Esq. (W. J. Mould, gardener) whose best plants were *Erica Cavendishiana*, *Genetylis tulipifera*, and *Pimelea spectabilis*. Mrs. Doherty was second, and Mr. W. C. Drummond third. The first prize for six varieties was won by Col. Landon, who had good examples of *Rhododendron Sesterianum*, *Rhododendron Gibsoni*, *Azalea Comtesse de Flandres*, and the seldom seen *Toxicophlæa spectabilis*. Major Clarke was a good second, and Jerome Murch, Esq., third. Mr. Cypher was first for a single specimen, staging a plant of *Pimelea spectabilis* 4 feet through and full of flower, and the second prize went to C. Gardiner, Esq., for a good *Anthurium Schertzerianum*. *Ericas* were well shown by several growers. Mr. Cypher was first for four varieties, having medium sized freely flowered specimens of *Cavendishi*, *ventricosa*, *coccinea minor*, *aristata major*, and *Victoria regina*. Mr. H. James was a good second, and Mr. W. C. Drummond third. Fine-leafed plants, although extensively shown, were not particularly good. Mr. Cypher had the best fifteen varieties, which included large healthy specimens of *Kentia Fosteriana*, *Pritchardia pacifica*, *Kentia australis*, *Dasyllirion acrotrichum*, *Encephalartos* and *Croton Evansianus*. Mr. H. James was second, and E. E. Bryant, Esq., third. Mrs. Doherty was the only exhibitor of nine plants, and was awarded the first prize. Messrs. Cypher and Drummond were respectively first and second for a single specimen. Fewer Ferns were staged than usual. Major Clarke was easily first for a collection of fifteen exotic varieties, and which comprised very healthy plants of *Asplenium Nidus-Avis*, *Gymnogramma sulphurea*, *Cheilanthes pulchella*, *Adiantum rubellum*, *Gymnogramma cristata*, and the beautiful and nearly hardy *Asplenium Goringianum*. E. E. Bryant was second, and Mr. W. C. Drummond third. Mrs. Doherty was first for nine varieties, and J. Murch, Esq., second.

Orchids, to which a medium-sized tent was principally devoted, were remarkable alike for their numbers and the quality of numerous exhibits. The display was undoubtedly the best yet seen in the west of England, and as a considerable number of the best plants were grown in the neighbourhood of Bath, the natives have good reason for priding themselves upon the rapid advance some of those in their midst have made in Orchid culture. There were three competitors for the prizes offered for a group of Orchids interspersed among Ferns and Palms, and to occupy a space 12 feet by 6 feet. The Rev. E. Handley, Bath, was rather easily first, his lovely group comprising numerous good forms of *Cattleya Mossiae*, *Cattleya Mendelli*, *Lælia purpurata*, *Cattleya citrina*, *Odontoglossum vexillarium*,

Roezli album, *Pescatorei*, *cirrhosum*, richly coloured *Masdevallias*, *Cypripediums*, and other choice Orchids, with sufficient greenery to display them to the best advantage. Messrs. Heath & Son, Cheltenham, were awarded the second prize, this group comprising fewer choice Orchids and many more Ferns and Palms; while the third prize was won by R. B. Cater, Esq., (T. W. Fisher, gardener), Bath. The latter of the two had the choicest collection of Orchids, but they were scarcely numerous enough to compete with the Cheltenham firm. Mr. J. Cypher also arranged a grand group of Orchids, Ferns, and Palms, but as these were not for competition the Judges awarded a certificate of merit. The Orchids, which by good and tasteful arrangement appeared to be growing out of a bed of greenery, and were, therefore, seen to the best advantage, comprised well flowered examples of such choice species as *Lælia purpurata* and *pallida*, *Cattleya Mendelli*, *Saccolabium ampullaceum*, *Dendrobium Dearei*, *Falconeri*, and *thyrsoflorum*, *Masdevallia Harryana*, *Cattleya Lawrenceanum*, *Odontoglossum Roezli album* *Alexandree*, *Wilckianum*, *Cypripediums*, and various other good valuable varieties. The Rev. E. Handley was a good first for six Orchids, consisting of single, or not made up plants of *Cattleya Mossiae* with 15 fine blooms, *Odontoglossum vexillarium*, bearing 16 strong spikes, *Lælia purpurata* a good variety with 24 large blooms, *Cattleya Skinneri* with seven good spikes, *Aerides Fieldingi* with three long spikes, one of which was branching, and a good *Vanda suavis*. Messrs. Heath & Son were second, their collection including large made-up pans of *Odontoglossum Roezli*, *Lælia purpurata*, *Cattleya Mossiae*, and a beautifully grown pruned plant of *Dendrobium nobile*. Mr. J. Cypher was a good third, his plants of *Lælia purpurata* *splendens* and *Cattleya Mendelli* being most noteworthy. In the amateurs' class for four Orchids the Rev. E. Handley was easily first, having *Cattleya Mossiae*, *Odontoglossum Roezli album*, *Vanda suavis*, and *Cypripedium Lawrenceanum* in good condition. H. Cruger Miles, Esq. (F. Perry, gardener), Bristol, was second, and Mrs. Gouldsmith (G. Pym, gardener), third. In the open class for a single specimen the Rev. E. Handley was easily first with a fine *Lælia purpurata* carrying twenty-one flowers, Mr. Cypher being a good second with *Cattleya intermedia*. The Rev. E. Handley was again first in the amateurs' class, winning with a good *Oncidium ampliatum majus*, Mrs. Gouldsmith following with a good form of *Aerides crispum*. The first prize for a new or rare plant was awarded to Mr. Cypher for *Cypripedium Lawrenceanum*.

Pot Roses were extensively shown, and many of the specimens were highly creditable to the growers. The first prize was awarded to the Rev. E. Handley (S. Kerslake, gardener), his group including extra good well flowered plants of *Souvenir d'un Ami*, *Madame Lacharme*, *Mlle. Thérèse Levet*, *Madame Eugénie Verdier*, and *Camille Bernardin*. R. B. Cater was placed second, but some of his plants were past their best. S. P. Budd, Esq. (W. Taylor, gardener), was easily first for six plants, these consisting of *La France*, *Madame Lacharme*, *Beauty of Waltham*, *Madame Catherine Sonpert*, *Ed. Morren*, and *Countess de Serenye*, all fresh and good. F. J. Walker, Esq. (A. W. Southard, gardener), was second; and T. Jolly, Esq. (A. Hawkins, gardener), third. The first prize for nine varieties of *Pelargoniums* was awarded to Major Clarke, W. F. Briggs, Esq., being second, and R. B. Cater, Esq., third; and for six varieties Mr. Cypher was first, Mr. A. A. Walters second, and E. E. Bryant, Esq., third. Some of the best sorts shown were *Duchess of Bedford*, *Triomphe de St. Mandé*, *Emperor of Russia*, *Royalty*, *E. Perkins*, and *Lady Isahel*. *Cinerarias* were well shown, the prizes going to Messrs. W. Pumphrey, S. Tredwell, and J. Murch in the order named. *Calceolarias* were very creditably shown, and with these Lord Justice Lopes was first, J. Murch, Esq., second, and Major Clark, third. Handsome groups of choice plants were arranged, but not for competition, by Messrs. R. Veitch & Son, Royal Nurseries, Exeter, G. Cooling & Son, Bath, and A. A. Walters, Bath.

Cut flowers were not so plentiful as we have seen them at these Shows, but the quality was good. Messrs. G. Cooling & Son were well first for twenty-four Roses, these including remarkably fine *Maréchal Niel*, *Reine Marie Henriette*, *Merveille de Lyon*, *Alba rosea*, *Catherine Mermet*, and *Madame Victor Verdier*. S. Tredwell, Esq., was a close second, and R. B. Cater, Esq., third. With twelve blooms, S. P. Budd, Esq., was easily first, his best being *Ulrich Brunner*, *Marie Baumann*, *Niphetos*, *Alba rosea*, and *Catherine Mermet*. W. Kettlewell, Esq. (J. Curtis, gardener), was second, and Mr. F. Hooper third. Messrs. Cooling & Son also staged two grand boxes of *Maréchal Niel*. Messrs. W. Meddick, F. Hooper, and T. Ascott were the most successful exhibitors of Pansies, and a certificate of merit was awarded to E. J. Lowe, Esq., for capital *Polyanthuses* and *Primroses*. Mr. C. T. Hill was first for a vase of cut flowers and also for a hand bouquet, and Messrs. Perry and E. Miller were the prizewinners with twenty-four bunches of cut flowers.

Fruit was shown in small quantities. The best six pots of Strawberries were shown by the Rev. C. C. Layard, the variety being *Sir Joseph Paxton*. Mr. J. Burch was second with *President*, and Lord Justice Lopes third. Mrs. Gouldsmith was first with a dish of Strawberries, having very fine *James Veitch*; Lord Justice Lopes was second and Mr. E. T. Collings third. Mr. F. Dando was first for Apples, staging a good dish of *Willow Pippin*, and Mr. Perry was second with *Colston Pippin* in good condition. Mr. R. Hooper Taylor was first for a good dish of *Beurré Rance* Pear, and Mr. T. Evry second with the same variety. There were capital Cucumbers in competition, T. Jolly, Esq., being first with *Parley Hero*; S. Tredwell, Esq., second with a seedling, and Mr. Fisher third. The competition with collections of vegetables was keen, and as these were for the first time arranged around the sides of one of the plant tents, they came in for more attention than usual. Mr. T. Evry was first with nine varieties, Mr. E. Fisher second, and Mr. M. Tiley third. The first prize for six varieties was awarded to Mr. G. Garraway, Mr. Pratt being a close second, and the Rev. C. C. Layard third.

SPRINGTAILS.

WITHIN the last few months I have received various communications from gardeners and other persons bearing reference to the creatures designated as above, and which seem to have in several instances caused surprise and alarm. Abundant as they are, until recently they have been little noticed; the older naturalists make a

few comments upon them, but their attention was principally occupied by larger game. The first attempt at a thorough examination of their structure, habits, and affinities was made by Sir John Lubbock about fourteen years ago. He divided what had previously been considered one group into two, based on the possession or absence of a leaping organ, but the species assimilate so greatly in many points that I think we must deem them all "Thysanura." Above I have referred to them as "creatures," for it is really uncertain whether one should call them insects, though they will doubtless bear that name in popular phraseology. By some entomologists they are considered to form what is styled a "degraded" division of insects, since they are wingless and pass through no distinct changes. Others have annexed them to mites, spiders, or the crab tribe; on the whole, they appear to me to come nearest to the mites. It is of the springtails or leapers amongst them I wish to speak, leaving their slow-moving relatives for the present.

The Collembola, for so are the leapers named, differ to some extent in habit from the other half of the Thysanura, inasmuch as they can only thrive where there is plenty of moisture, but cold does not affect them injuriously. Their relatives, non-jumpers, prefer warm and dry places, yet both are occasionally found in company, and on this point they agree—viz., a strong objection to light, except one or two species which run about on the surface of standing water, yet these generally choose shady ditches or pools. To the ordinary observer the Collembola are much like mites, but some are globular, some elongated, and in colour variable, greyish, reddish brown, or nearly black. Their bodies are covered with scales, which are interesting objects under the microscope, and, indeed, furnish admirable tests. The eyes are simple and the head is provided with a biting, not a sucking, apparatus. Under the abdomen is the singular forked organ by means of which the leaps are made. The power of leaping, on examination, has been found to depend, not chiefly on the strength of the muscles attached, but on an elastic force possessed by the spring. When a party is suddenly exposed to view it is amusing to see how they leap hither and thither in alarm. Probably they are eaten by some birds, though I have not had ocular evidence of this, as their eggs have been discovered under the bark of trees; it has been suggested that they may at times migrate to a distance from their usual haunts on or near the ground.

The question of importance to the gardener is, What is the usual food of the Collembola? For, though several species have been detected in cellars or damp rooms, and one or two occur on the leaves of grasses and allied plants, the majority have been reported from kitchen gardens, where they occur frequently in large numbers. It is, however, generally on or near boards that they are seen, the moister the better; Cucumber frames have occasionally furnished an abundant supply. That the bulk of them feed on decaying vegetable substances is highly probable, hence they are found amongst leaf mould, and in manures composed of animal and vegetable matter commingled. It has been suggested that some of them devour the mites or Acari that are often in their company, but I have not yet been able to ascertain that such is the fact. If so, it would be the young mites that afford them food, for the jaws of the Collembola are weak, and therefore scarcely equal to the task of seizing mites fully developed, the integument then in many species being somewhat tough. So far as we know at present there is only one direction in which they are likely to give us trouble, in other respects they occupy a neutral position; possibly, indeed, we may prove that most of them are beneficial to horticulture. But there are a few species which feed (not perhaps exclusively) upon the spores and mycelium of fungi, and two or three of these have been taken in Mushroom beds. It appears difficult to apportion the harm done between them and the Acari that are their usual associates. Several of the Collembola are partially kept in check by a minute foe or parasite, which clings to their bodies.—
ENTOMOLOGIST.

BURCHELLIA CAPENSIS.

In reference to the extremely hard character of the wood the Dutch settlers in South Africa gave this plant a name equivalent to Buffalo Horn in English, and by that title it has long been known at the Cape of Good Hope. A popular name more expressive of its beauty would, however, be desirable for general use here. Though one of the oldest Cape plants grown, it must be classed amongst those that are neglected, for it is comparatively seldom seen in modern gardens. In a few establishments it is still a favourite, and recently at Messrs. J. Veitch and Sons, Chelsea Nursery, we saw some plants of this Burchellia that were remarkably beautiful, bearing numerous heads of its brilliant scarlet tubular flowers. It can be grown in a greenhouse, but it is much

more satisfactory in an intermediate temperature, a warm conservatory, or the cool end of a stove, as it grows more freely and flowers more abundantly than in a cold house. A compost of light turfy loam and peat with good drainage meets its requirements; and when growing frequent syringing is beneficial. Under ordinary treatment the plants flower in March, when their bright flowers and fresh green foliage have a most pleasing appearance.

THE NEWCASTLE JUBILEE EXHIBITION.

THE above Exhibition was opened on Wednesday, the 11th inst., by the Duke of Cambridge; Earl Ravensworth, the Duke of Northumberland, Sir William Armstrong, and all the local gentry and nobility being present. The proceedings were of an enthusiastic character, the weather was most favourable, and the whole passed off with great élan. The entrance of the Exhibition, where the Duke of Cambridge was received, was decorated by Mr. John Wardle, nurseryman, Collingwood Street, Newcastle, with a very choice collection of Palms, Tree Ferns, &c. There are four courts, and between these is a quadrangular



Fig. 70.—*Burchellia capensis*.

piece of ground laid out as an ornamental garden; this is divided into eight segments. On entering the visitor will be at once struck with the display of Coniferae exhibited by Messrs. Wm. Fell & Co., Wentworth Nurseries, Hexham. They have decorated two segments; one is evenly planted with *Cupressus Lawsoniana erecta viridis*, in diamond fashion, *Retinospora obtusa compacta*, *Abies Douglasi glauca*, *Retinospora aurea*, *Thujaopsis dolabrata*, and several others were employed, these were mixed with silver and golden Hollies, all well blended together, as well as deciduous flowering shrubs and early flowering Rhododendrons. Towards the edge of this segment hardy carpet bedding was carried out with *Veronica repens*, *Antennaria tomentosa*, *Daelylis elegantissima aurea*, *Saxifragas*, *Aubrietias*, and the firm's name worked out in white spar. This segment was most pleasing, and will have a fine effect during summer. The other segment opposite was divided into beds, including a Pear, ereseent, a Shamrock, and a circle; these were planted with New Golden Weeping Ash, Standard Purple Beech, Abele Poplars, early blooming Rhododendrons, and sown with Fell's lawn grass seeds.

Mr. Jos. Watson, nurseryman, Fenham, has also planted a segment with much good taste, similar to Mr. Fell's, but scarcely such large plants were employed. The Japanese Maple was used with good effect, and the hardy carpet bedding is very good. Messrs. Richard Smith & Co., Worcester, have a group different from the rest, and will, no doubt, receive much attention; including fine examples of *Thujaopsis dolabrata*, *Picea*

nobilis glauca, *Picea pinsapo*, *Ilex striata glauca*, and *Taxus japonica*. Amongst these are planted *Paeonia albiflora*, *Funkia Fortuni*, *Iris lurida Jaquesiana*, *Echinops Ritro*, and many other choice herbaceous plants, which will render this segment gay all the summer. The other four segments are planted by Messrs. Little & Ballantyne, Carlisle. One is an entire mass of hybrid *Rhododendrons*, splendid plants full of bloom, and embracing both early and late varieties. The others are a mixture of hardy *Coniferae* of all sorts, specimen and half specimen. This quadrangle is quite the fashionable promenade; all the courts have access to it. It is covered in at the sides all round, so that visitors during wet weather can be protected from the weather. The displays furnished by the nurserymen have given much satisfaction. They have all entered into it with a determination to do their best, though the weather has been most unpropitious.

Passing into the south court the next thing of importance in the gardening world is the magnificent collection of seeds exhibited by Messrs. Sutton, Reading, embracing all the best vegetables, such as Early Drumhead Savoy, Sutton's Cluster Cucumber, six hanging together, and Tomatoes Earliest of All, Golden Trophy, and Sutton's Reading Perfection. These and Apples, Pears, Potatoes, Cauliflowers, and vegetables of all sorts are shown of their natural size in wax. The stand is most imposing, and has been thronged with visitors. The same firm also show their well known mixtures of Grass seeds for lawns, permanent pastures, heavy loams, water meadows, sheep downs, and chalky uplands. Messrs. Little & Ballantyne also have attractive seed stands. Mr. Jos. Watson exhibits a stand, showing the mode of decorating rooms with Ferns in glass cases, with much good taste. In the opposite side of this court Messrs. Finney, Newcastle, and Messrs. Webb, Stourbridge, show interesting collections of seeds, well arranged.

In the grounds there is a design of the old bridge of Newcastle, destroyed in 1771. This is most unique and attractive; it has fancy shops on the bridge. The sides of the bridge are planted with *Coniferae* and bedding plants by Mr. W. R. Armstrong, nurseryman, Newcastle, in a most attractive way. This gentleman has also largely ornamented and embellished the stand where he sells his cut flowers. The garden attractions are not here quite finished, but bid fair to be in keeping with the good taste of the rest of the Exhibition. There is an electric railway, a model coal and lead mine lit up with electricity, which is a great attraction. The promoters may be congratulated on their success. Over 20,000 people visited it the first day, and it is supposed that 25,000 season tickets will be sold. Should any of the readers of the Journal visit the Exhibition it would be almost well to go to Tynemouth or South Shields, both of which possess excellent lodging and hotel accommodation within thirty minutes' run to the Exhibition; at Newcastle the hotels are all crammed. Both places mentioned are becoming fashionable bathing places. There are also many places of interest to visit in the neighbourhood of Newcastle where the visitor will be sure of a genuine northern welcome. Ravensworth, Lambton Park, Red Rose Vineeries, and the Hermitage, Chester-le-Street, might be seen in a day or two.

HARDY OFFICIAL PLANTS.

IN the No. 10 issue of Mr. T. Christy's excellent serial* we find the genus *Strophanthus* exhaustively treated and freely illustrated, also a contribution by Mr. Lewis Castle on some officinal plants that may be grown in this country for commercial purposes. This article we reproduce:—

THE plants of medicinal value that can be cultivated advantageously in this country are comparatively few, and are chiefly natives of Europe, the temperate parts of Asia, or America. Some have been grown in certain districts of England rather extensively for many years, but the list might well be extended, for land like that at Mitcham and Hitchin, and some parts of Essex, seems to be admirably adapted for the purpose. In the case of several products it has been found desirable to have them in a fresh state; than they can be obtained when imported, and this alone is a point in favour of their increased cultivation in this country.

ACONITUM NAPELLUS, L. (Monkshood or Wolfsbane).—A perennial plant; a native of Europe and temperate Asia, the roots yielding a poisonous principle that has been found useful in rheumatic affections. An allied species of *A. ferox*, producing the virulent poison Bish, used in Northern India for poisoning arrows. In this country the native species has become notorious, owing to people occasionally mistaking the root for Horseradish, with fatal results, a mistake that might be most easily avoided, as the resemblance is exceedingly slight. With a few other species, it is cultivated in British gardens for ornament, and might be grown more extensively, if necessary, for officinal purposes. It succeeds on almost any soil that is not very dry, but it prefers a shaded position, thriving under trees or in any similar situation. Division of the roots is the readiest mode of increasing it, as the smallest pieces will grow and make good sized plants more quickly than from seed. The latter can, however, be sown in autumn, and the seedlings transplanted in the following spring, allowing a good distance between them, as they grow rapidly. Where the plant progresses favourably the roots will be of fair size the second or third year.

ANEMONE PULSATILLA, L. (Pasque Flower).—This beautiful plant is commonly seen in gardens, on rockeries or in well-drained borders, but it might be readily grown more extensively with a little care. It is advisable to raise the plant from seed sown in August, in pans or pots of light sandy soil placed either out of doors or in a cold frame. The young plants can then be transferred in the following spring to their permanent quarters. Select a rather warm position and deep well-dug soil, light loam being the

best, with a good natural drainage, as the plant is very impatient of stagnant moisture, being found in a natural state on open hills in dry soils. The plant may also be increased by division of the roots, either in autumn or early spring, the latter being preferable in favourable seasons, though sometimes the flowering is liable to be checked for that season.

ANTHEMIS NOBILIS, L. (Chamomile).—The dried flowerheads of this plant are familiar to all, and the plant itself is also well known, both in gardens and as a weed. The whole plant is powerfully aromatic, both leaves and flower-heads having been used to yield oil of Chamomile; but the latter possess the most powerful properties, the double variety being that generally cultivated, although it was pointed out many years ago that the yellow central florets, which are lost in the double form, contain more of the active principle than the white ray florets, which become multiplied in the variety ordinarily used. The plant is a perennial, easily grown and easily increased. It succeeds in almost any ordinary soil, and divisions of the plant or cuttings placed in a shady position and kept moderately moist will soon form roots, and when established can be transferred to their permanent quarters. The flowers are produced in July and August, and if cut in succession as they expand, others will open for some time; but where many plants are grown it is necessary to cut as many as possible at one time to economise labour.

ARISTOLOCHIA SERPENTARIA, L. (Virginia Snake Root).—A native of Virginia, Carolina, and several others of the North American States, where it is collected and the dried roots exported. The roots are perennial, and consist of a number of small interlacing fibres, from which arise the numerous herbaceous stems to a foot or more in height, flowering in May or June, and dying in the autumn. It was cultivated by Tradescant, in his "Soulh Lambeth," as early as 1632, but is not often seen except in botanic gardens containing collections of medicinal plants. The seeds should be sown under glass, either in a cold frame in the autumn or in heat in early spring, employing a light sandy soil and draining the pots thoroughly. In May the young plants can be placed out of doors, selecting a warm shaded position free from stagnant moisture, but where they are not likely to suffer in hot weather. A slight mulching over the roots after the stems have died or been cut away in autumn will provide a suitable protection for them until the succeeding spring.

ARTEMISIA ABSINTHIUM, L. (Wormwood).—A perennial plant, native of Europe, growing 3 to 5 feet high, succeeding best in sheltered situations. It is increased by seed, cuttings, or division of the roots, and as the leaves and shoots are used, the chief point is to induce as free a growth as possible. By providing a suitable number of young plants to form a succession, the old plants can be destroyed when they are becoming too woody or bare of growth.

CARUM CARUI, L. (Carraway).—As usually grown this plant is a biennial, but it can be rendered an annual, though not with any material advantage from a commercial point of view. It has been cultivated for a considerable period in England, Essex being especially noted for its production. The old practice there, now to a great extent discontinued, was to plough up old pasture land as early in March as weather would permit, selecting for preference strong loam. Then on each acre were sown 12 lbs. of Carraway, 10 lbs. of Coriander, and 12 lbs. of Teasel. The Coriander was cut in July, the same month in the following year the Carraway was fit for cutting, and in the autumn of that year the Teasels were harvested. A good mode of treating it is to sow the seed in drills in early autumn or spring, the latter being generally preferable, as the plants then have ample time to become strong enough before winter. The seedlings should be thinned to 4 or 6 inches apart if they are strong, and the only subsequent attention needed will be to keep the ground clear of weeds. In the succeeding year the plants will flower and produce their seeds. In harvesting these, care must be taken to cut the stems before the seeds or fruits are fully ripe, as they quickly fall, and a large portion of the crop will be lost. The stems can be tied in bunches and the seeds threshed out when they have dried sufficiently.

CHIMAPHILA UMBELLATA, Nuttall, (Winter Green).—This is a rather difficult plant to grow satisfactorily in this climate, not so much, perhaps, on account of temperature, as because there are some essential soil constituents in its native North American home with which we are unacquainted. It, with another species, *C. maculata*, the Spotted Winter Green, is found in woods, but not in damp situations, mostly frequenting the drier and higher parts. In England it requires a border of light soil, well drained, and not too exposed either to the sun or winds. It can be increased by division, but this is an operation that must be very carefully performed, or the plant will suffer, and several have found that too great an eagerness in increasing their stock has resulted in its total loss.

CIMICIFUGA RACEMOSA, Elliott, (Black Snake Root, Bughane, or Cohob).—A strong-growing handsome plant, which has an excellent effect in the garden, especially at the back of herbaceous borders or in woodland situations, as in good soil it attains the height of 6 feet or more, producing beautiful feathery racemes of white flowers. It is found in the United States from Maine to Vermont, the root, for which it is chiefly valued, being thick and knotted. The flowers have an unpleasant odour, and to this circumstance it owes one of its popular names. It can be grown in any ordinary garden soil, but must be allowed plenty of space, and is best in a slightly shaded position. The seeds should be sown as soon as they are ripe in a similar situation.

CITRULLUS COLOCYNTHIS, Schrad (The Coccyth).—A widely distributed member of the Cucurbitaceae, being found in South Europe, Northern India, Africa, and Japan, and valued medicinally for the pulp of the fruits, which is a powerful cathartic. Like the *Elatium* it is a perennial, with deeply lacinated leaves, the fruit about the size of an Orange, ripening to a bright yellow tint, and containing a white spongy pulp with an intensely bitter taste. It is easily increased by seeds sown in light loam and leaf soil, in moderate heat, and the plants either placed out in beds of rich soil in warm situations, or grown in frames where the plants will succeed better and ripen their fruits freely. Like most of the Cucurbitaceae, the fruits should, however, be gathered before they are fully ripe. The roots can be easily preserved from year to year if duly protected from frost and damp.

(To be continued.)

* "New Commercial Plants and Drugs," Christy & Co., 25, Lime Street, London, E.C.

ROYAL BOTANIC SOCIETY.

MAY 18TH.

THE summer shows of this Society held in their spacious marquee are always beautiful, but that under notice was one of the prettiest we have seen in Regent's Park; the exhibits were numerous, of good quality, and arranged in Mr. Coomber's most tasteful style. The weather was, however, rather unfavourable in the early part of the day, but happily it cleared slightly in the afternoon, and there was a good attendance of visitors.

ORCHIDS.—A charming bank of Orchids in competition for the numerous prizes was formed in the centre of the marquee, and constituted one of the principal features of the Show. In the amateurs' class for twelve plants, Mr. F. J. Hill, gardener to H. Little, Esq., The Barons, Twickenham, was awarded first honours for healthy plants, remarkably well flowered, of the following—*Oncidium Marshallianum*, *Dendrobium thyrsiflorum*, *Cattleya Skinneri oculata*, eight spikes; *Dendrobium Dalhousianum*, *Odontoglossum Pescatorei*, *Cattleya Mendeli*, Mrs. H. Little, and other varieties; *Acridos Fiellingsi*, *Lycaste Skinneri*, *Odontoglossum hystrix*, and *Cypripedium caudatum roseum*. Mr. J. Douglas, gardener to F. Whitbourn, Esq., Great Gearies, Ilford, was second with large vigorous plants of *Cymbidium Lowianum*, *Cypripedium villosum*, *Oncidium ampliatum majus*, and excellent examples of *Odontoglossum Roezli* and *album*. Mr. J. Cypher, Cheltenham, was first with a nurseryman's dozen specimens, his *Lælia purpurata* specimens being very handsome, also *Dendrobium thyrsiflorum* with over three dozen spikes, *Cattleya Skinneri*, *Calanthe veratrifolia*, *Oncidium ampliatum*, *Vanda suavis*, *Cattleya Mossiae*, *Lælia Wyattiana*, *Odontoglossum citrosum*, *Dendrobium chrysotoxum*, and *Odontoglossum vexillarium*. Mr. H. James, Castle Nursery, Norwood, was second with medium size but fresh, healthy plants; and Messrs. T. Jackson and Son, Kingston, were third with a very good collection.

One collection of twelve single specimen Orchids was shown, the first prize being awarded to Mr. J. Douglas. The best of the Ilford plants were a magnificent *Cymbidium Lowianum* with eight long spikes, *Oncidium macranthum*, *Cypripedium Domini*, *Odontoglossum Roezli*, and *Cypripedium Harrisonianum*. In the corresponding class for nurserymen Messrs. Cypher and James were awarded equal first prize, the former having *Lælia purpurata*, *Cypripedium Lawrenceanum* (ten flowers), *Calanthe veratrifolia*, and *Odontoglossum vexillarium* in fine condition. Mr. James also had a very handsome *Lælia purpurata*, *Saccolabium retusum magnificum*, *Masdevallia superba*, and *Cypripedium barbatum superbum*.

PELARGONIUMS.—Just within the entrance to marquee were the Pelargoniums, which are invariably very attractive, especially those from Slough, which this season were very fine. Mr. Turner was first with six show varieties, beautiful plants, 4 or 5 feet diameter and profusely flowered, of the following:—*Prince Leopold*, *Kingston Beauty*, *Maid of Honour*, *Claribel*, *Mon. Demoulin*, and *Amethyst*. Mr. J. Cypher was second with much smaller plants, but good. Mr. Turner was also first with six fancy varieties, remarkably handsome specimens, profusely flowered, and 4 feet in diameter. *Ellen Beck* was very beautiful; *Princess Peck*, *East Lynn*, *The Shah*, *Miss E. Little*, and *Lady Carrington* were other good varieties. In the amateurs' class, Mr. D. Phillips, gardener, Linglay Broom, Slough, was first with show varieties, capital plants, 3 feet in diameter, and second with fancy varieties similarly beautiful, *Delicatum* and *Roi des Fantaisies* being extremely fine. Mr. F. J. Hill and Mr. J. Wiggins secured the other prizes.

STOVE AND GREENHOUSE PLANTS.—Mr. J. Cypher was victorious in the nurserymen's classes for twelve and six specimens, taking premier honours in both with grand examples of *Pimelea spectabilis*, 6 or 7 feet in diameter, *Erica depressa*, 5 feet across, *Dracophyllum gracile*, 5 feet diameter, *Erica ventricosa* magnificent, 5 feet diameter, *Acrophylum venosum*, very healthy, and several large Azaleas and *Aphelexis*. Mr. H. James was second with twelve and six stove and greenhouse plants in the nurserymen's class, showing fine specimens of his usual character. Mr. W. Chapman, gardener to J. Spode, Esq., Hawkesyard Park, Rugeley, took the lead with ten specimens, even, well grown, and handsome plants. Very fine were *Dracophyllum gracile*, *Tetratheca hirsuta*, *Statice profusa*, and *Helaroma tulipifera*. Mr. Chapman was also first with six specimens of similar merit, *Dracophyllum gracile* very even and well flowered. Mr. G. Wheeler was second with ten and third with six stove and greenhouse plants, small plants, one Azalea being unfit for any show. Mr. R. Butler, gardener to H. H. Gibbs, Esq., St. Dunstan's Lodge, Regent's Park, was third with ten small plants, and Mr. A. Offer, gardener to John Warren, Esq., Handcross Park, Crawley, was second with six plants, his best being a globular plant of *Boronia elatior*, 4 feet in diameter, and loaded with flowers.

ROSES.—Messrs. G. Jackman & Son, Woking, scored a success with nine Roses in pots, securing the first prize with grand healthy specimens, well flowered, and rather more forward than the Cheshunt plants. *Cheshunt Hybrid*, *Celine Forestier*, *Comte de Serenye*, and *Mon. Nonan* were the most notable. Messrs. Paul & Son, Cheshunt, were accorded second honours for their giant specimens, some of which were not, however, quite at the best yet. *Centifolia rosea* was fine, also *Charles Lawton* and *Celine Forestier*.

Three beautiful banks were formed of small Roses in pots; in the class for twenty Mr. C. Turner leading with charming plants, well flowered, fresh and bright; Messrs. Paul & Son being second with rather smaller but good plants; and Messrs. G. Jackman & Son third. These, with some Roses not in competition, added greatly to the beauty of the Show. Mr. Lockie, Oakley Court Gardens, Windsor; Mr. P. Perry, gardener to G. Rowlett, Esq., The Woodlands, Cheshunt; and Mr. W. Rumsey were also exhibitors of Roses.

AZALEAS.—M. Louis Van Houtte, Ghent, had a non-competing group of Azaleas, for which a large bronze medal was awarded, the plants being standards, with heads 3 or 4 feet in diameter, and very large flowers. The chief varieties were *Oswald de Kerchove* (crimson), *La Victoire* (scarlet), *superba* (dark crimson), *Madlle. Marie Lefebvre* (white), the flowers single or semi-double, 4 inches in diameter; *Princess Charlotte* (rosy crimson), and *Apollon* (brilliant scarlet) double. Mr. G. Wheeler was first with six Azaleas in the amateurs' class, fairly good specimens. Mr. C. Turner won

first honours in the nurserymen's class for six plants with large conical plants, profusely flowered; and he was also first with twelve Azaleas in 12 inch pots, beautiful specimens. Messrs. Jackson & Son were second with a good half-dozen plants in the nurserymen's class; Mr. Lockie being first for six Azaleas in 12-inch pots.

FINE-FOLIAGE PLANTS AND FERNS.—Mr. J. Cypher was the premier exhibitor of fine-foilage plants, showing large specimens in excellent condition. Mr. Offer had the best plants in the amateurs' classes. Other exhibitors and prize-takers were Messrs. H. James, R. Butler, and Wheeler. Mr. J. Douglas and Mr. R. Butler were respectively first and second with six Ferns, both collections being notable for their freshness; Mr. Eason being third.

Heaths were shown by Mr. J. Cypher, who was first for six, and Mr. H. James, who was second. The best of the first six were *depressa multiflora*, *ventricosa coccinea minor*, and *Cavendishiana*. Messrs. Collins, Bros., & Gabriel, Waterloo Road, were first with twelve alpine plants, chiefly dwarf *Phloxes*, *Gentianas*, and *Violas*; Messrs. Paul & Son being second with a more varied collection. Mr. Eason was also first with twenty-four *Gloxinias*, capitally flowered. For a collection of twelve hardy herbaceous plants Mr. T. S. Ware was first, having fine pans of *Trillium grandiflorum*, *Lilium longiflorum* *Harrisii*, *Doronicum Cusii*, *Trollius americanus*, *Ranunculus amplexicanlis*, and *Polemonium Richardsonii*. Messrs. Paul & Son were second with a fine collection, *Arnebia echioides* being extremely fine, also *Tiarella cordifolia*. Messrs. Collins, Bros., & Gabriel were third.

MISCELLANEOUS.—The nurserymen's non-competing exhibits were very numerous as usual, the large groups in the centre of the marquee from Messrs. Williams, Laing, Paul, and Cutbush being very attractive. Mr. B. S. Williams, Upper Holloway, exhibited a handsome group of choice Orchids, *Amaryllises*, *Anthuriums*, *Azaleas*, and other flowering plants, with graceful Ferns, *Palms*, *Dracænas*, *Crotons*, and other beautiful plants (large silver medal). Messrs. John Laing & Co., Forest Hill, had a bright and tastefully arranged group, comprising numerous Orchids, *Tuberous Begonias*, *Azaleas*, *Imantophyllums*, *Medinillas*, *Ericas*, and *Anthuriums*. The foliage plants, including *Caladiums* in variety, *Dracænas*, *Palms*, *Maples*, *Ferns*, &c. (large silver medal). Messrs. Wm. Paul & Son, Waltham Cross, Herts, had a handsome group of *Roses*, mostly dwarf, healthy, well-flowered plants in pots, and eleven boxes of cut blooms, *La France*, *Queen of Queens*, *Maréchal Niel*, *Magna Charta*, and *Crown Prince* being largely represented (silver medal). Messrs. Wm. Cutbush & Son, Highgate, contributed a varied collection of greenhouse plants effectively arranged, *Azaleas*, *Japanese Maples*, *Ericas*, the free-flowering *Leptospermum bullatum*, *Statice*, and *Pimelæ*, with *Ferns* and *Palms* (silver medal).

Mr. J. James, Woodside, Farnham Royal, Slough, had a group of very fine *Calceolarias*, richly coloured, large flowers (bronze medal). Mr. J. Walker, Thame, showed three boxes of *Maréchal Niel* *Rose* blooms of wonderful size and rich colour (certificate). Messrs. Paul & Son sent trusses of *Lilac hyacinthiflora* fl.-pl., with double mauve-coloured flowers. Mr. W. May, gardener to F. C. Jacob, Esq., Amherst Park, Stamford Hill, had a pretty group of Orchids and Ferns (large bronze medal).

Messrs. Hugh Low & Co., Clapton, had a group of Orchids comprising some excellent *Cattleyas* and *Chrysanthemums* (small silver medal). Mr. J. Cypher showed several pretty varieties of *Lælia purpurata* and *Cattleya Mendeli*. Messrs. Fisher, Son, & Sibray, Sheffield, sent a plant and blooms of *Pelargonium Duchess of Teck*, very free, double white. Mr. H. James had a group of *Dracænas*, *Spiræas*, and *Ferns* (large bronze medal). Mr. W. Rumsey, Waltham Cross, showed a beautiful group of *Roses* in pots (bronze medal). Messrs. W. Balchin & Son, Brighton, exhibited a number of plants of *L. schenaultia biloba major*, loaded with bright blue flowers. Mr. T. S. Ware, Tottenham, staged a large group of *Daffodils*, hardy flowers, and *Primula coccinea* varieties (large bronze medal). A handsome group of *Japanese Maples* was contributed by Messrs. John Standish and Co., Ascot (large bronze medal). Messrs. Paul & Son, Cheshunt, had a pretty group of hardy flowers (certificate); Mr. H. B. May, a group of *Ferns* and *Calceolarias* (bronze medal); and Messrs. Barr & Son, Covent Garden, a large collection of *Daffodils* (bronze medal).

Botanical certificates were awarded to Mr. B. S. Williams for *Chamaedorea cynanchanthus*, *Odontoglossum Andersonianum splendens*, and *Lælia grandis*; to Mr. Cypher for *Lælia purpurata* *Cypheri* and *Wyattiana*; to Mr. Little for *Cattleyas Mendeli grandis* and Mrs. Little; and to Mr. W. May for *Odontoglossum Jacobeanum*. Floricultural certificates were awarded to Mr. B. S. Williams for *Gloxinia Alfred Outram*; to Mr. T. S. Ware for *Pæonia Moutan rosea odorata Triomphe de Milan*, and *Odorata Maria*, and *Trollius Fortunei* fl.-pl.; to Mr. Turner for *Pelargonium Maggie*, and *Tea Rose Hon. Edith Gifford*; and to Messrs. Laing & Co. for *Tuberous Begonias Prince of Wales*, *Queen Victoria*, and *Princess of Wales*.



KITCHEN GARDEN.

MUSHROOMS.—We have never experienced a winter when beds generally were so slow in bearing or coming in to time, but they are making up for it now, and some of our January-formed beds are producing an excellent supply. It is a great mistake to do away with any bed because it may not fruit in six weeks or so after spawning, as if the spawn is good and the bed is properly made it is sure to bear as the season advances. Beds which are kept long in hand are apt to become

too dry, and it is a good plan to supply them with water heated to 90°, and then cover with hay. Mushrooms are acceptable at all times, and a bed or two may be formed now to bear in July and August. A cool shed is the best place for them now, and if made up, spawned, and earthed in the usual way, there is little danger of failure.

SPINACH.—Our Spinach sown last autumn was completely killed during the winter, but the spring sowings are in now, and its fresh delicacy is very acceptable. We regard Spinach as one of the most useful vegetables for a gentleman's table. It can be used in such a variety of ways, is always a choice vegetable, and when well cooked it is delicious. Every gardener should have a constant supply of it, and this is easily secured by sowing a few rows once a fortnight. Unless the demand is great do not sow much at once, as it is apt to run to seed rather early in summer, and as soon as it does this it is useless. It will grow well in any good ground if sown in drills 2 inches deep and 1 foot apart. The round-seeded variety is the best for the summer season.

TURNIPS.—Early William is now ready in the open. It is the best of all early Turnips. We have still roots of the Swedish variety in store, so that our supply of Turnips has extended throughout the year, but the Swedish are only good for flavouring now, whereas the Milans are tender and delicious as a dish, but the first will soon seed, then they become hot and dry, and to have summer Turnips good and delicate always they must be sown in small quantities and often. If two or three rows are sown now at intervals of ten days they will be much better than having them coming in widely apart and in large quantities. Veitch's Red Globe is one of the best for present sowing. Hot dry weather does not influence its quality to any extent. As the early Spinach is cleared off sow Turnips in its place. No one need hope to secure tender Turnips from poor shallow soil, but where it is deep or moderately so and rich they grow freely and prove first-rate in quality.

THINNING YOUNG VEGETABLES.—Turnips, Carrots, Parsnips, Onions, &c., are now growing freely, and many of them are becoming quite crowded in the rows and beds; but there is always a danger of their becoming too much so, and this is the worst thing that could possibly occur. Young plants that are overcrowded while small will never prove quite satisfactory when large, and many will fail to gain maturity. No over-thinning after crowding has taken place will ever compensate for the damage done to them in the first instance, and if crops of the finest quality are desired they must be freely thinned. They need not be thinned to the full extent when so small, but always keep ahead of crowding until maturity.

EMPTY FRAMES.—Now that early vegetables are being cleared out of the frames many of these are empty, and as it is not profitable to allow them to remain so until the autumn or winter the soil they contain should be levelled, and then plant Vegetable Marrows or ridge Cucumbers in them. These, as is well known, will succeed in the open quarters, but in cold districts they will do better in the frames, and taking a crop of this kind from them is making the most of these structures.

SPRING CABBAGES.—These are now large, firm, and excellent. Webb's Emperor is early, large, and excellent in quality. In cutting Cabbage at this time it is a good plan to allow the stems to sprout again, and to supply a large number of small heads in the autumn; but those which have run to seed need not be left for this purpose, as they will not prove useful under any circumstances.

EARTHING.—In windy and exposed spots earth up all Cauliflowers, Brussels Sprouts, and such like, when about 6 inches high, as if the soil is well drawn up to the stems there is less danger of their being blown over or shaken at the root before gaining maturity than if left unearthed.

RHUBARB AND SEAKALE FLOWERING.—Almost as soon as both of these are fairly into leaf they begin to flower, and as this is not beneficial, every flower stem or head ought to be cut off before it has had time to open.

PEAS AND BEANS.—Now is the time to sow Peas and Broad Beans for a supply in August. In many cases Peas are very plentiful when they come in at first, but by the end of July the supply lessens, and by August they are frequently scarce. This is caused by sowing too many about the same time, and if three weeks were allowed to intervene between the sowings, and a good row or two made about the end of May, August Peas would be more plentiful. Sow on the trench system, give them plenty of manure, and they will prove luxuriant and fertile. Broad Beans should be sown on the level ground, but in deep, stiff, rich soil.

Keep the Dutch hoe going amongst all growing crops. On no account allow the weeds to seed. Water any recently planted vegetables that are suffering from drought. Get the whole of the garden into first-rate order. Want of hands is often an excuse for disorder, but want of inclination may sometimes be included. Rest assured there is no profit in a badly kept vegetable garden, and a little extra help in the busy season will, as a rule, be amply compensated for before the year is ended.

HARDY FRUIT GARDEN.

STOPPING AND DISBUDDING.—It is yet too early to stop the majority of fruit trees, more especially those that are well established, but many of those newly planted may well be attended to. Wherever a good length of young wood is laid in, it is apt to break irregularly, the strongest shoots at or near the ends taking more than their share of sap. Take out the points of all but the leader, and this will encourage the back growths. Espalier or horizontally trained trees may, if well attended to, be induced to form two pairs of branches, thereby more

expeditiously filling the walls or trellises. The leader being duly shortened back at the winter pruning, say to a length of about 10 inches, will now be furnished with several young shoots. Select a well-placed pair for laying in right and left, and a third to take the lead, all the rest being pinched back. Early in July the leader should be stout and hard enough to be cut back to near whatever distance the horizontal branches are trained apart, and this will cause the formation of several strong shoots, from which another trio should be selected and treated as before. This rapid method of furnishing wall space ought not to be attempted in cold late districts, and wherever the earliest pruned branches do not always ripen properly, nor is it advisable in the case of the weakly growers. Peaches and Nectarines are setting excellent crops, at least where not injured by frosts, and they are also singularly clean and free from blister. What few leaves are badly curled should be removed, and in the case of the more vigorous trees disbudding and stopping may commence. Remove any very gross shoots, which, if left, soon spoil the trees. Pinch back to about four leaves any of the strong foreright shoots at the base of which young fruit are swelling, and rub off a good many inside shoots. Always reserve, and lay in when long enough, a young back shoot on the upper side of each young fruiting branch, and another at or near the end. In most cases it is the former only that is needed for furnishing the tree with fruiting wood next season, the old fruiting wood being cut away at the winter pruning, but it is necessary to have foliage or active growth beyond the swelling fruit, or otherwise they rarely mature. Apricots will be thin this year, but it may yet be advisable to resort to thinning out wherever clusters of fruit have formed. When near the size of large Damsons the green Apricots are excellent for tarts, and we delay thinning till they are large enough to thus use.

WATERING BORDERS UNDER COPINGS.—One of the objections urged with some reason against glass copings is the fact that they apparently much weaken the trees. We have them principally over Apricots, and at one time the trees certainly deteriorated to a marked extent. This was simply owing to the principal portion of the roots being too dry, since they have been watered soon after the fruit is set and occasionally afterwards they have done much better. Even when revolving copings are fixed, these being adjusted when advisable to let the rain reach the trees, insufficient water reaches the roots; in fact, half the Peach and Apricot trees on hot borders in this country do not get enough moisture at the roots near the walls. They may be moist on the top and dry as a bone a few inches down. Give them water and liquid manure occasionally, as well as a liberal mulching of manure, and better crops of fruit are certain to follow.

FIGS TREES KILLED BY FROST.—It is some years since so much damage has been done to the open-air Fig trees by frost. Many trees unprotected by mat and straw thatch or branches of Fir are killed down to the ground, while even the protected trees will in many places be very thinly set with fruit. Those cut down by frost frequently break strongly from the stem just above and below the ground or below the snow line; but the shoots thus formed are long and sappy, and only a moderately severe frost will cripple them. Anyway, two or three seasons will be lost, as those rank growths are slow in arriving at a bearing stage. We prefer to start afresh with new trees, these usually fruiting either during the first or second season, according to the size of the tree, and do not grow so luxuriantly. Most nurserymen keep a good stock in pots, and these, if planted in a compost of fresh loam, garden soil, and lime rubbish or chalk in about equal proportions, and not allowed to suffer for want of water, will soon become well established. If planted when in full leaf it is not advisable to separate the roots from the soil, but as a rule they take to their fresh quarters more readily when many of the roots are disentangled and spread abroad in the soil. When planted with their balls of roots and soil intact they must be examined often and watered when necessary. Brown Turkey and White Marseilles are the hardiest and most prolific sorts.

NETTED GOOSEBERRY BUSHES.—Birds being very destructive to both the buds in winter and the fruit in the summer, it has been found the most economical plan to permanently enclose them with a framework and wire netting. Those who have adopted the plan, and to our knowledge the number includes several readers of this Journal, are strongly advised to have the roof only permanently covered and the sides temporarily. They should be closely covered in till such times as the birds cease to be destructive among the buds, after which the sides, at least, should be uncovered till the fruits are ripening and blackbirds are busy among them. When kept closely covered in the birds, notably the cuckoo, cannot get at the caterpillars, and the latter, therefore, have either to be destroyed by some other means, or otherwise they clear the bushes of leaves. This is no imaginary danger, as one large permanently enclosed breadth of bushes cost in one season nearly £5 to clear it of caterpillars. Fir tree oil, used at the rate recommended by the vendor, is a good remedy for this troublesome pest. Our protected bushes are usually earlier than those not covered, and certainly well repay for the extra outlay.

FRUIT FORCING.

FIGS.—Earliest Forced Trees in Pots.—The watering at the roots must be lessened, but still afford the supplies needed to keep the foliage in good order, and discontinue syringing. For the colouring process a free circulation of warm air is necessary, leaving the top ventilators open a little at night, the highest coloured fruit being the best flavoured. As soon as the first crop is gathered commence syringing the trees twice a day, also watering copiously at the roots with weak guano or other forms of liquid manure, which will enable the trees to make a more

vigorous second growth. If in the second crop the fruits show very abundantly they must be thinned, so as not to overburden the trees to the prejudice of next season's bearing.

Planted-out Trees.—The permanently planted trees in houses will require attention in stopping the young shoots at the fifth or sixth joint, and thinning the strong-growing shoots to admit light and air to the fruit. Attend to syringing the trees twice daily, and water abundantly at the roots as often as required, employing weak liquid manure, especially where the borders are small. If the first crop of Figs on the early started trees has not yet commenced ripening there will soon be indications of its taking place, and until the crop is perfected a little ventilation should be allowed constantly at the top of the house, and whenever the weather is favourable a free circulation of warm air must be afforded. Cease syringing the trees when ripening commences, and avoid a superabundance of moisture about the house. A good watering should be given when indications of ripening appear, which more particularly applies to large trees with only limited space for the roots. Let the fruit be perfectly ripe before gathering, unless it is to be packed, when it must be gathered a few days sooner.

PEACHES AND NECTARINES.—*Trees Started Early in the Year.*—The trees will soon have stoned, but until that is completed they should not be subjected to a higher temperature than 60° to 65° by artificial means, commencing to ventilate at 65°, and not allowing 70° to be exceeded without a free circulation of air. Tie in the shoots as they advance, removing superfluous growths, as it is impracticable to have a crowded growth and stout wood with well developed fruit buds; indeed, it is important that no more shoots be trained in than can be fully exposed to light and air. If the shoots are crowded thin them well as soon as the stoning is completed. Allow one fruit to every square foot of trellis covered by the trees, which will be one to each shoot of last year, although vigorous shoots may be allowed to carry two fruits, so by apportioning the fruit according to the varying strength evenness of growth may be maintained throughout the trees. After stoning maintain a good moisture in the house, and water the inside border copiously, which in well dried borders will not be required less than once a week, mulehing the surface with about 2 inches thickness of short half-decayed manure. Unless it is desired to accelerate the ripening continue 60° to 65° at night and 65° by day artificially in dull weather, and 75° with sun heat, closing at the latter with plenty of moisture in the house. In a high temperature and moist atmosphere Peaches swell to a great size after stoning. If such be required, a night temperature of 65° to 70°, 70° to 75° by day artificially, and 80° to 85° from sun heat may be secured to the trees, closing early so as to run up to 90° or 95°. With due precaution taken in having the fruit well exposed, raised with its apex to the light, and the foliage drawn aside or shortened, so that the fruit receives all the sun and light, it is very taking in appearance, though scarcely so tempting or so well flavoured as those in less heat and moisture and freer ventilation.

Trees Started in February.—These are stoning, and must have the number of the fruit reduced, leaving two fruit on strong shoots but one only on weak. The fruit retained in all instances should be best situated for exposure to light and air. Thin the shoots where overcrowded, and the more light the fruit is subjected to from the commencement the better is its colour and the higher its flavour. The temperature, by artificial means, may be kept at 55° to 60° at night, 60° to 65° by day artificially, ventilating at 65°, fully at 70° to 75°. Assist weakly and full-cropped trees with liquid manure, but keep it from trees that are very vigorous, as it only tends to growth and may prove fatal to the stoning.

Trees Started in March.—The fruit is swelling freely, and must be well thinned. It can now be seen which fruits have taken the lead. Two or three will be ample to leave on strong shoots, and proportionately less on weaker growths. Afford liquid manure to weakly trees, but vigorous trees, being more prone to cast the fruit, should have water only. Remove all superfluous shoots, the remaining growths being trained and tied to the trellis as they advance.

Latest Trees.—Disbudding and tying-in the shoots must be continued, also thinning the fruit. As the fruit of these outside is not very promising ventilate freely, so as to have the fruit ripe at the same time as the crop outside instead of preceding it, as in an ordinary season. Examine all inside borders at least once a week, giving thorough supplies of water when necessary, and syringe the trees twice a day, except when the nights are likely to be cold, which, however, more particularly applies to unheated houses. These should have the afternoon syringing early, so as to allow the foliage to become dry before night. Early closing may also be practised with a view to husband the sun heat.

STRAWBERRIES IN POTS.—The latest plants will be in position and in flower; our latest occupy shelves in a Plum case, are throwing up the trusses strongly, and are disposed to have long stems, as is common with late plants. This can only be obviated by keeping the plants well up to the glass and near the ventilators, so that they do not become drawn. When the flowers are advanced select the strongest, all the weaker blooms being cut away, leaving sufficient only for a crop. The centre or king fruit is always the largest, and to encourage this and others to set well early thinning should be practised. Plants swelling their fruit must have frequent supplies of liquid manure; indeed it should be given right away from the fruit commencing to swell freely until it changes colour for ripening, when clear water, and not too much of it—only the plants must not flag—will be more suitable. In this stage they like a high temperature and moist atmosphere, and as size goes a long way in a Strawberry we

swell off as many as possible in the Cucumber and Melon houses, and keep rather drier and cooler when ripening. It not only saves the fruit from "spotting," but the flavour is very much better, the aroma being very marked between those ripened in a moist atmosphere and a rather dry and airy.

PLANT HOUSES.

Centropogon Lucyanus.—Cuttings will now be abundant, provided old plants after flowering were introduced into brisk heat; but if taken from plants growing under these conditions and inserted without preparation, nearly the whole of them will be lost. Previous to taking the cuttings, remove the plants to cooler and more airy quarters for a short time, when nearly every one will form roots. Take the cuttings when they are about 2½ inches in length, with a small heel, not too much of the old stem. Insert them thickly together in sandy soil, well watered, and the pots plunged in the propagating house. We have always found that the cuttings root best outside the propagating box or without the aid of bellglasses. They must be shaded from strong sunshine. Plants raised from the present time until the end of June will be found most serviceable in 3 to 5-inch pots. The retention of the old stock is advisable only where large plants can be used for decoration. Old stock can be cut close back after sufficient young plants have been raised, and when they have started into growth the old soil can be shaken from their roots, and the plants repotted into the same size, smaller, or larger pots, as each case may demand. After this operation shade must be applied, and a close moist atmosphere maintained. These do well in good loam, one-seventh of decayed manure, and silver sand.

Poinsettias.—Firm short-jointed cuttings should now be plentiful, and in this condition they root freely provided they are not too soft by production in a close confined atmosphere. Slip them off with a sharp knife just where they start from the old stem. Insert the cuttings singly in the centre of 2-inch pots filled with light soil. A little sand should be placed for the base of the cutting to rest upon. Give a good watering, and place them under handlights or in the propagating frame, where they can be shaded and kept close until they are rooted. Insert cuttings at intervals of two or three weeks until the beginning of July. After they are rooted gradually harden them to cooler and more airy conditions, and at the same time expose them to full light and sunshine.

Euphorbia jacquiniiflora.—It is useless to attempt to strike cuttings of this useful winter-flowering plant that have been drawn up softly in heat and moisture. If the cuttings are firm every one will strike. We have found them root freely either inserted in sand and covered with bellglasses, or plunged in cocoa-nut fibre refuse and shaded from strong sun. Another good method of propagation is to cut up the old stem into lengths and insert them in sand in the propagating house. If they have been grown cool these will root freely even with growths on them 1 inch or more in length.

Eranthemums.—A number of *E. Andersoni* should now be rooted singly in small pots and afterwards transferred into 4-inch pots, in which they will be useful for decorative purposes. This is best grown on a single stem, from the centre of which a beautiful truss of small white beautifully spotted flowers is produced. It is easily propagated in heat, and is most effective during the sunless days of autumn and winter, either in the stove, intermediate house, or conservatory. To show them to advantage well elevate them above surrounding plants. *E. pulchellum* is most ornamental with its bright small blue flowers, which are freely produced in succession during the winter. Few plants are more easily propagated or grown, and if good plants are required root the cuttings at once. The tops from those rooted, struck from time to time, will make valuable decorative plants in 4, 5, and 6 inch pots. *E. argenteo-marginatum* is also a very fine foliage plant in a small state in 4-inch pots. These may be rooted now for the embellishment of the stove and intermediate structures.

Scutellaria Mocciniana.—To have this most effective plant in good condition during autumn and winter cuttings should be rooted at once and insert them in succession during this month and June. They may be inserted singly in small pots, as nearly every one will root in sandy soil in heat if they are shaded from the sun. The earliest may be pinched once after they are rooted, and after they have broken again into growth may be transferred into 4-inch pots, in which they may be allowed to extend until they develop their large showy heads of bloom. The later plants may be grown in the same size, but without pinching their shoots. To grow them well they must not be in too much heat or under too shady conditions. After they are once rooted the object should be to induce strong, firm, sturdy growth. Directly the flowers are visible feed liberally with weak stimulants or artificial manure, for upon this depends very much whether the heads of bloom are well developed or the contrary.

Thysacanthus rutilans.—Few plants for elevating above others or standing on the enbbs of plant houses are more beautiful than this old inhabitant of our houses. To grow it well for this purpose insert clean healthy cuttings singly in 2-inch pots in sandy soil. They root freely in handlights in heated structures if shaded from the sun. Directly they are rooted place them in 5-inch pots in a compost of two parts good loam to one of leaf mould, to which is added sand and one-seventh of decayed manure. They should then be gradually hardened to cool conditions, and during the summer grown in cold frames. The result of this treatment will be dwarf clean plants with dark green large foliage to the base. When grown in the stove they become tall and a prey to scale and other insects; in fact, they always present an unsightly appearance.

THE BEE-KEEPER.

WINTERING BEES.

(Continued from page 364.)

THERE can be no doubt that bees properly wintered are those which give the least trouble and the greatest yield of honey. Properly speaking, however, it is not the winter we dread, but the spring with its sudden changes from bright sunshine to the cold blasts so frequent at this season, and which are so destructive to bee life. Take the present season for example. Many hives that were strong three months ago are now so much reduced in numbers that they will be profitless this season. It has no doubt been an exceptionally cold and protracted season, but we have no assurance that such seasons will not occur again, but rather may expect a recurrence oftener than desirable.

My object, therefore, in writing this article is with the view of impressing bee-keepers with a few things which ought to be remembered and acted up to. It ought to be borne in mind that whatever condition a hive is in and whatever season, the crown ought to be well but not too much covered, and the material of a non-conducting and porous nature through which all the vapour ascending from the bees shall be carried freely away, and, of course, the hive otherwise protected from the weather. Crowding many bees into as little space as they can be crammed, or as the Americans and other writers term it, "bees are the best packing," is folly in the extreme. Bees so treated, as well as those that are put up for winter with a scarcity of provisions, are often on the wing during the winter and spring months, when those differently treated remain quiet and within doors. On the other hand, care must be taken not to give too much space, but if the bees occupy one-third of it that will be about right if all other things necessary have been attended to. If the heat generated by the bees is unduly carried away, then abdominal extension is sure to follow, and the longer the confinement the greater the malady. In an open winter, or one with much frost without snow, my bees never suffered. Only at the breaking up of a storm when snow is upon the ground have they been injured, and sometimes, nay often, have I witnessed strong hives decimated on the bees coming out with a sudden rise of temperature when snow was on the ground. It is bad policy to close in bees during severe frost and snow storms unless ventilation has been provided elsewhere than at the regular entrance. Where there are ventilating floors they may be shut in with safety for weeks. When bees are comfortably lived they will stand confinement with impunity for at least three months, and when kept comfortable they consume less food and do not require to cluster so closely together as they do when the conditions of the hive are unsatisfactory. It is when bees are kept in this state that they are liable to die during cold weather, as they are unable to raise the temperature to about 60° so as to enable them to feed and to travel from one part of the hive to another without being chilled.

After the spring has set in with all its variations of temperature bees should not be induced to fly unless when they are inclined. If there is a scarcity of pollen in the locality peameal should be substituted as well as water, so as to prevent them roaming too far from their hives. It will be remembered by your readers that I

gave most of my hives some feeding in January which they took readily. Many hives in this neighbourhood that were not fed until March are now useless, they would not feed during the inclement weather we have experienced. However much we may confine our bees during the winter, it is not desirable to do so after March has arrived. Still, it is very often advisable, especially when "Boreas' blasts are blowing keen" and nothing can be had outside. Strong and well-provisioned hives will brave the severest weather when weaklings and hives short of food will dwindle. Hives short of pollen breed small and often worthless bees, while those unable to keep up a proper temperature from any cause will have many defective winged bees, and much brood and many eggs destroyed, just as is sure to occur when brood-spreading and stimulative feeding have been resorted to, especially at an unseasonable time. My crossed Cyprians, notwithstanding the untoward season, have never been fed and never require the brood to be spread, yet are well forward; in fact, are now getting the swarming sound since thaw came.

Housing bees during winter is a subject I have given some attention to, and have proved that when properly managed is a very safe and satisfactory way to prevent bees becoming diseased through long confinement in severe weather. There is no better place for this purpose than a dwelling room, the temperature of which should never be lower than 45° Fahr. It may be either kept light or dark as desired. If the former the bees must be kept closed in, but if the latter they will not require it. A great many hives can be housed in very little space if of a proper sort, and it is unnecessary to keep away from them, because if bees are accustomed to much disturbance they are not affected in any way by it, but if kept quiet for a time then any sudden disturbance annoys them. It is therefore rather desirable to be often amongst the hives when so treated. Bees are capital barometers, and when kept within doors, although the temperature is raised to 60° or even more, if it does not reach 50° outside they show no desire to get out, but the moment the day is favourable for bees flying outside they will attempt to get out. Of course the bee-keeper will attend to them and their wants when this occurs, and a favourable opportunity should not be lost to let them have an airing, after which they may be again taken inside. In some localities it is quite unnecessary to be at any trouble in housing bees, but in others it is desirable if not actually necessary.

When bees are housed, if they have a fair complement of bees, say from twenty to thirty thousand or more, it is not necessary to have so high a temperature as if the bees were much fewer; but if the rule of having two-thirds more empty space than is occupied is observed and carried out, there will be little danger of any succumbing. Still there is a number we must not come under, but that number when comfortably quartered may not be more than will fill an ordinary teacup. I have brought such bees and queen successfully through winter on more than one occasion.

The error of crowding bees into too little space has been well illustrated in the case of the Ligurian queens and bees sent to this country, when very often all were dead if at all crowded, when those boxes having few bees arrived in capital condition. I may return to this subject at a future date; meanwhile it is well to remind all bee-keepers to keep a sharp look out so that no hive suffers from a scarcity of food, keep all crowns well covered, prepare for raising queens to unite to swarmed

hives, and when a hive is once ready to swarm do not hinder it, as by so doing the old queen may be deposed. Rather swarm artificially as allow this to occur. Have hives in readiness for any emergency, and take the proper time for supering when it arrives.—A LANARKSHIRE BEE-KEEPER.

NOTES ON BEES.

SCIENTIFIC QUEEN BREEDING.

MR. COWAN gave minute instructions in the *British Bee Journal* in 1883 for queen rearing that may be summarised as follows:—The stock must be very strong, the queen be laying her utmost, and then be removed; the first cells started being removed so as to get them started from the just hatched eggs. But he failed to say what was to be done with the queen, or how she was to be successfully introduced to another stock in her heavy condition, which was to be the most valuable one in the apiary. Nor could he explain to several querists why they had lost them in the attempt of re-introduction. His ideas are about right on the matter regarding theory, but the difficulties were on the practical side. Mr. D. A. Jones improves on this, by crowding bees on empty combs, and then gives them a frame of eggs from the selected stock, so that he does not remove the queen; but neither Mr. Cowan or Mr. Jones can tell within two days of the time the queens will hatch, and to avoid the risk of getting them destroyed they are cut out several days too soon. I believe to have good queens—that is, improved cultivated queens, the following conditions at least are necessary:—The mother queen must be laying her fullest, cells must be started from the egg in a vast number of bees, and each cell must be well fed and brooded by the bees right up to the moment of hatching, and on no account must they suffer a chill while being cut out. Without my "law" if would be impossible to get more than one queen under the above conditions, but with it, all that is necessary is to prepare your breeding stock as advised by Mr. Jones, and forty-eight hours after let the choicest and heaviest queen run in. She can be removed in an hour and given to another lot, so that we get eggs that can be calculated to just the hour when the queens will hatch out.

I maintain that my "law" is infallible, and every supposed failure will be found to have been caused by an overlooked condition when I described it. I said the bees received her "joyfully." All the bees in the hive at once make a peculiar hum or buzz. I am well aware that bees can hear, but when I introduced the queen this spring to the queenless stock, I determined the experiment should be directed to shed light on

THE LANGUAGE OF BEES.

I therefore lifted out a frame from the hive—holding the queen in my hand at the time—and when I had it a yard off, the bees sitting still on the combs, and those in the hive also quite still, I dropped the queen on one side. The bees at once began their peculiar buzz and ran about. The bees on the other side did the same, as also at nearly the same moment did all the bees in the hive, though I saw no bees pass from one side of the comb to the other, and I firmly believe none left the comb—they seemed too pleased. The queen remained where she was placed, and though she looked frightened, having only just been taken from another stock, the bees did nothing but dance round her and offer her food. The bees in the hive certainly heard those on the comb, as none passed from one to the other, and they were too far off to touch. I think if Sir John Lubbock tried the experiment he would be satisfied bees could hear, and then his mind would be open to the fact that they have a language, which has been brought before the public by Mr. Grimshaw. I have for a long time been convinced of this, and that hearing, next to sight and memory, was far more acute than that of smell; in fact, I rather think they cannot smell. I never could get them to find honey placed on glass when I have set them the task of finding it during a dearth in autumn, having first given them a taste to draw them out. The glass with the honey on it was placed on the top of a hive. I have placed a piece of dry empty comb on the glass, on which they fairly swarmed, and though wasps quickly found the honey, I never could get bees to find it. In travelling across the country with driven bees in perfectly empty boxes on dull days, and when I have known for a fact that no hives were within half a mile, I have had scores of bees come to the boxes attracted by hearing their hum. A few bees in a box and a piece of comb, with honey or syrup in it, are very handy to have with you when hunting up driven bees. Anywhere within quarter of a mile of an apiary the bees will find you, and after loading up will soon return with hundreds. You can at once strike a line and walk straight to their owners, who may be very glad to

have them driven. You can have them found long before you would perhaps find anyone to tell you of them.

Some bee-keepers, when feeding their bees, contract the entrance to keep robbers out. They little think the robbers are attracted by the loud hum made by the bees ventilating their hive through the narrow opening. Open the entrance so wide that they need not make such a noise and the robbers will go home. I always give an extra wide entrance in autumn and winter, and never have any robbing now, and I always feed them when I can, by means of an inverted bottle at the entrance. All that is necessary to prevent robbing or fighting is a large entrance, so that they can take it quietly. Another point on the hearing or language of bees. When a hive is killing its drones a loud guttural noise will be heard. This sound I have always heard the day before the drones were killed. It is kept up during the night, and then the slaughter begins in the morning. Most people have noticed all their hives on this work at one time, and Huber relates how it was seen in every hive placed on a glass table at one and the same time. My opinion is this, perhaps only one stock begins sounding the death knell, then others hearing it they also begin, perhaps thinking it is started in their own hive, while before dawn every stock is sounding it and all are ready to begin business at one moment.—A HALLAMSHIRE BEE-KEEPER.

(To be continued.)

TRADE CATALOGUES RECEIVED.

James Veitch & Sons, Royal Exotic Nursery, 544, King's Road, Chelsea, S.W.—*Catalogue of New Plants, 1887 (illustrated), and List of Bedding Plants.*

William Bull, 536, King's Road, Chelsea, S.W.—*Catalogue of New, Beautiful and Rare Plants and Orchids, 1887 (illustrated).*

T. S. Ware, Tottenham.—*Catalogue of Dahlias and Hardy Florists' Flowers.*

Thomas Painter, Smallwood, Stoke-on-Trent.—*Catalogue of Dahlia Plants.*

H. Hildman, Oramenburg, near Berlin.—*Catalogue of Succulent Plants and Cactæ (illustrated).*



TO CORRESPONDENTS

All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

LATE INQUIRIES.—It is necessary to again remind correspondents that letters arriving on WEDNESDAY MORNING cannot be answered in the "next issue," which is then far advanced for press.

Garden Instruments (Suburbanist).—The instruments to which you refer can be obtained from Messrs. Negretti & Zambra, High Holborn, London.

Currant Buds Diseased (W. X. and others).—Your Currants are infested with an insect known to entomologists as *Phytoptus Ribis*, and popularly as the Currant Bud Mite. See page 391.

Gloxinia Leaves Scorched (Kittie).—The leaves not only appear but are in reality scorched or crumpled through being exposed to too dry an atmosphere. The remedy is to afford shade from powerful sun, avoiding sudden fluctuations of temperature and drying currents of air.

Rhododendrons (M. C. B.).—Rhododendrons *Edgeworthi* and fragrant-issimum are distinct species, but we cannot say to which your plant is referable without a leaf is sent or a fuller description is given. You can, however, readily determine if the plant is *R. Edgeworthi*, as this has the under surface of the leaves and stems thickly covered with a yellowish brown wool-like substance.

Shows at the End of May (S.E.).—The only horticultural exhibition near London in the period you name is that at the Crystal Palace, Sydenham, on the 21st inst. It is, however, a good time to visit the nurseries, in all the more important of which you will find abundant attractions, but you can only obtain admission to the leading private gardens by previous arrangement with the proprietors or their gardeners.

Roots on Vine Rods (W. B.).—We shall be glad to see samples of the Grapes when it is convenient for you to send them, together with notes on the renovation of the Vines. If there is something left "unsaid" on the subject by all means let us know what it is. We have long known that soft rampant growth in a very damp house, and the roots of the Vines in poor soil, are favourable conditions for the emission of roots from the rods.

Papers at Gardeners' Meetings (F. G.).—It is not the rule for the papers that are read at gardeners' meetings to be printed and published officially, for the sufficient reason that with very few exceptions indeed there could be no adequate return for the outlay incurred in such publication. We have published many excellent papers that have been sent to us after they were read, and there are others that deserve a wider audience than that comprising a meeting in a room, however large it may be. We have not seen the one to which you allude.

Insects on Vines (Hambledon).—The dead insects, that are much crushed, resemble the winged form of thrips. The live specimen on the leaf took its departure the moment the box was opened in the quick manner peculiar to thrips. These insects are very injurious, and you will do well to fumigate the house lightly on two or three consecutive still evenings. A strong volume of smoke would injure such thin leaves as those sent, which are, moreover, scorched, the discoloration not being due to the attacks of insects of any kind. We find no trace of the presence of the phylloxera on the foliage, whatever there may be on the roots. The Vines are obviously in a debilitated state, and remedial measures were suggested in our former reply.

Width of Peach Case (H. R. W.).—For a Peach case against a wall 9 or 10 feet in height, we consider 6 feet a suitable width, in fact we have four similar structures which answer perfectly. The trees are on the back wall, the front being utilised for Tomatoes trained to a trellis 6 inches from the glass. The structures have 2 feet 3 inches front lights, or with the bottom and top plates are 2 feet 9 inches high in front and upright. They have also top lights 3 feet wide, and sloping so as to cover a width of 2 feet 6 inches, and every alternate top and front light is made to open. This insures thorough ventilation. The other part of the roof is fixed. There is no reason why the house should not be 8 feet instead of 6 feet wide, only little is gained in area thereby commensurate with the greater distance of the glass from the Peach trees.

Cucumbers not Swelling (J. G.).—The Cucumbers you have sent are free from disease, and their refusal to swell after attaining a length of 6 inches or so we attribute to the soil being dry at the bottom of the bed. Make an examination, and let it be thorough, and if you find the soil dry pour in water until it is quite moist, and do not let it get dry again. We once inspected a house of Cucumbers in charge of an excellent gardener, in the same condition as yours appear to be. On suggesting dryness as the cause he triumphantly dug into the bed, showing us the moist soil; he was urged to dig deeper, and was seen convinced where the fault lay. He was taken quite by surprise, quickly applied the remedy, and was rewarded with an abundant crop of fine fruit. That was not the first instance that came under our notice of Cucumbers refusing to swell under the conditions indicated, nor the last.

Pears Falling—Warts on Vine Leaves (Beatrice).—The Pears fall because of defective fertilisation during the blossoming period, and the black matter on them is a fungus that takes possession of fruits that are practically dead. We cannot say why fertilisation was not completed; there may have been a deficiency of pollen, or dull weather might have prevailed, thus preventing its dispersion; or again, the organs may have been injured by cold, or shrivelled too quickly on a bright sunny day when the roots were dry for an hour or two. There is also another matter. As the trees have not been disturbed for two years they may not be in the best condition for producing blossoms with all the parts fully developed for fructification. It is not a good plan to thin fruit till the setting is completed. There is no red spider nor any other insects on the Vine leaf. Its condition is the consequence of some error in ventilation. Read our reply to "J. L. A.," page 364, which applies equally to your case.

Applying Wood and Coal Ashes to Lawn Tennis Ground (W.).—The dressing consisting of a good layer of ashes, more than half wood ashes would most likely burn the grass if the summer following its application should prove hot and dry. The coal ashes used in moderation would improve the surface if it be wet and heavy, but they should not be those of furnaces where there is a powerful draught. The ashes from a house are most suitable, and they should be passed through a sieve with half-inch mesh, and afterwards be washed, using a sieve with $\frac{1}{4}$ -inch mesh, retaining that in the sieve only. A bushel per rod of this stuff would tend to make the surface drier and more springy, without interfering with the growth of the grass. A dressing of wood ashes, of which a peck per rod is sufficient to apply at once, would destroy moss, and cause a better growth of grass, especially of *Cleaver*, which, however, it is undesirable to encourage, and it would be still further improved by using the wood ashes with an equal proportion of quicklime and set well incorporated, applying during moist weather in April, and again with the first moist weather after midsummer, at the rate of half a peck per rod. If the land be mossy and thin the quantity may be doubled.

Anemones Diseased (A. L.).—The leaves you have sent are attacked with the Anemone fungus, *Æcidium quadrifidum*, which has been figured and described as follows by Mr. Worthington G. Smith:—"If a leaf is gathered from an Anemone suffering from disease, and the under surface is examined, it will be found, as at A (fig. 71), covered with a vast number of little yellow dots or cups, accompanied by an equally large number of minute black spots, the latter too small to be seen in the natural size illustration at A. The name *Æcidium* is one form of a Greek word meaning a little chamber—a very appropriate name, as we shall see further on; *quadrifidum* means that the mouth of the burst fungus cup or chamber is (or rather should be) divided into four. This specific name is a very bad one, for the mouth of each cup, as may be seen at B, is generally lobed and torn in a very irregular manner, seldom or never presenting four parts only. Under the microscope each yellow spot or pustule on the leaf is seen as a deep little cup, as at B, with frayed edges.

The edges, which in the mature examples turn outwards, at first covered over the open part of the cup when it was in a ball condition. As maturity is reached the ball bursts, and the frayed edges turn back as illustrated. The investing cup itself is composed of a single thickness of minute cells or bladders packed side by side like the cells of a honeycomb. These constituent cells or bladders are shown in the frayed edges. The cup itself is not an empty one, but on the contrary is full of microscopic globular balls, like minute grains of yellow pollen; these bodies, also shown in the middle of the cup in the illustration at B, are the spores or reproductive bodies of the fungus, roughly answering to the seeds of flowering plants. The spores of course, like ovules, are female. Three of the black dots are also shown—one is marked at C. These are glutinous little spots, termed by botanists spermatia, or male bodies containing male fertilising atoms named spermatia, roughly answering to the pollen of flowering plants. Some of the little round spores out of the *Æcidium* cup will be seen sticking on to the little black glutinous discs, or on the fine spermatic threads growing out of the disc at C. The fine lines seen outside the frayed edges of the *Æcidium* cup represent the lines of junction of the cells which go to form the lower cuticle of the Anemone leaf. Here and there little openings occur, as in the three shown near D. These openings are the stomata or organs of transpiration of the plant; through these little orifices the plant exhales water in the form of vapour. In dry weather the little openings keep closed, so that the plant may not perish by losing all its moisture in the form of vapour, but in damp weather the little mouths stand elastically wide open, so that the plant may be benefited by the damp air. It commonly happens that when fungus spores

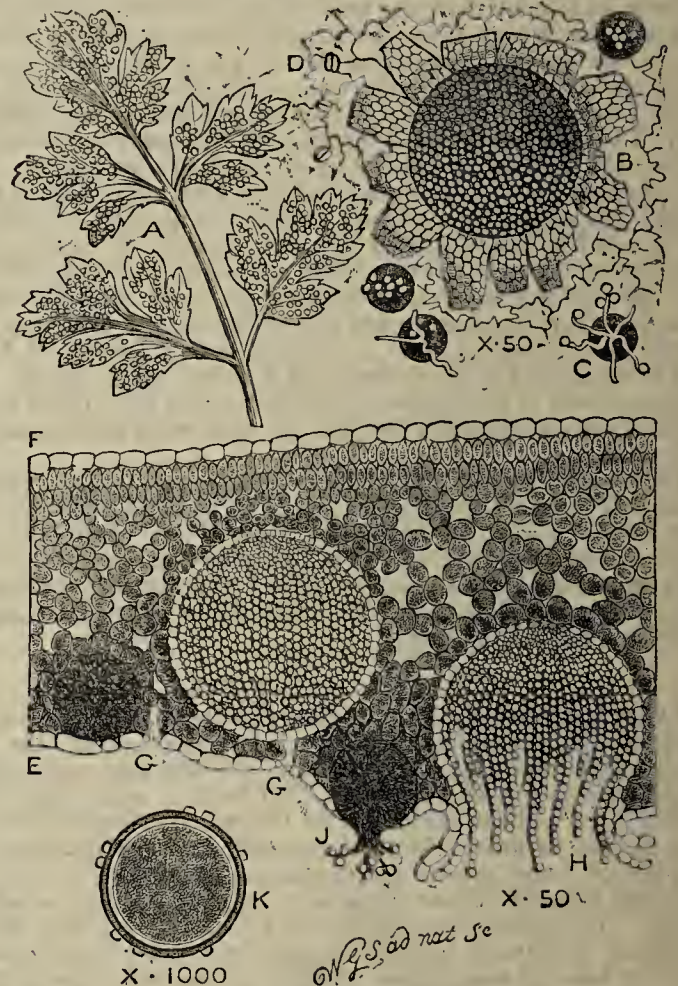


Fig. 71.—*Æcidium quadrifidum*.

germinate on the under surface of a leaf in humid weather, that the fine spawn threads from the spores find out these mouths of transpiration, and so get inside and amongst the tissues of the leaf by the open doors. Sometimes the thread of the fungus is of such a nature that it sets up putrescence in the course of growth. This is the case with the spawn of the fungus of the Potato disease; it gets inside the leaf by the little open mouths or organs of transpiration. It then not only lives inside the leaf and sets up putridity in its progress of growth, but it sends out new spawn threads from the inside of the leaves through the mouths outwards. This process soon chokes up all the stomata and reduces the stem as well as the leaves to a putrid mass. The *Æcidium* cups and the male organs termed spermatia are embedded in the substance of the Anemone leaf, and it is desirable to see them both in section. For this purpose a leaf must be cut in two with a keen lancet, and the cut must be made through both *Æcidium* and spermatium. When the leaf is divided, a slice, or rather film of inconceivable thinness, must be sliced off the cut surface and transferred to a slip of glass. If the slice is successfully made we shall see the fragment as shown in the lower illustration of fig. 71. The lower surface of the leaf is shown at E, and the upper surface at F. The epidermal cells top and bottom are colourless, not green. At G two organs of transpiration are shown, both open and leading to the intercellular spaces between the constituent cells of the leaf. Between the two letters G an immature *Æcidium* cup may be seen embedded in the leaf—a little chamber—full of spores or seeds—hence the name. Between E and G an immature dark-coloured spermatium is seen embedded. At H a mature *Æcidium* cup is illustrated; the cup has burst through the lower cuticle of the

leaf, thrown back its frayed edges right and left, and the spores are hanging in chains from the open mouth. At J a ripe spermatogonium is shown, also bursting through the epidermis of the leaf. Attached to its glutinous mouth and protruded spermatid threads some of the shed spores from the *Æcidium* cup may be seen. It will be observed that the leaf near H is considerably thicker than at E F. This extra thickness, or hypertrophy of the leaf tissues, is a common after result of the attack of parasitic fungi. The reader should remark that each *Æcidium* cup is made up of an investing membrane of one series or stratum of transparent cells, and that the presence of both *Æcidium* cups and spermatogonia cause the tissues of the leaf to become corroded and blackened within. It is now only necessary to take a single spore from a cup and use the highest powers of the microscope for its magnification. If we enlarge 1000 diameters we shall see the yellow spore, as at K, full of granular protoplasm, or vital formative material, and more or less studded by the sticky male dust from the protruded and broken-up threads of the spermatogonium or male organism. The *Æcidium* cups and the spermatogonia both arise from the same spawn or mycelium within the leaf. The mycelium forms knots near the lower surface of the leaf where the constituent cells at E are looser and larger than the small and compact ones above, as at F, and where the little vertical strengthening palisade cells seen just under the transparent stratum of the upper leaf surface at F are absent. The upper surface of the leaf at F is too firm for the development and bursting of the *Æcidium* cups and spermatogonia. The *Æcidium* of Anemone is a close ally of the *Æcidium* or "blight" of Barberry bushes, a fungus which is supposed by some observers to be the cause of the red rust and black mildew of corn. The fungi of rust and mildew are termed *Uredo* and *Puccinia*, but no members of these two genera have yet been associated with the *Æcidium* of Anemones. All that is known of the fungus of the Anemone blight (*Æcidium quadrifidum*, D.C.) is that the phenomena we have described are repeated year after year on the produce of the same rootstock from the perennial mycelium within the tissues of the perennial host plant. There is no remedy for such a disease; the only plan for the destruction of the fungus is to root up and burn all infected plants."

Blood Manure—Salt in Soils (H. F., Cape Colony).—The recipe for making blood manure to which you refer has not proved uniformly satisfactory. A simple method of preparing blood is to mix it when quite fresh with sufficient fine dry earth to form a powder. Stored in a dry place the manurial properties are retained for almost any length of time. A successful gardener who has used it says blood conveyed in that form is an excellent fertiliser, applied as a top-dressing or mixing a peck to a bushel of soil in potting, the blood in the first instance having been mixed with at least six parts of dry earth. A pinch between the finger and thumb suffices as a top-dressing to plants in 6 to 8-inch pots, and is beneficial to all kinds of softwooded plants, including Begonias and Gloxinias. The extraction of salt from soil or neutralising the effects of it is a much more difficult question than the conveyance of blood to the soil. Salt is mainly extracted from soil by evaporation, being drawn out with the moisture, and rests on the surface in a white film. This may be seen on the margins of tidal streams in this country in the summer, and is much more apparent in the tropics. In South America Mr. Darwin saw incrustations of sulphate of soda and common salt after a week of hot weather, making the plain appear as if covered with snow. In preparing soil for potting an excess of salt could be removed by spreading the soil in a warm place, watering it well and frequently, and drying it quickly. On a larger scale benefit has resulted in salt marshes by encouraging the luxuriant growth of plants that grow naturally there, and digging cross ditches for carrying away the water from the land, salt being thus drawn out by the plants as well as floated away in the drains. Land treated in that way has afterwards grown useful crops. In warm climates, where the abundance of organic matter and its rapid decomposition pour into the atmosphere a copious supply of ammonia, the formation of nitric acid proceeds with energy, whether from the nitrogen of the air or the slow combustion of the elements of the ammonia and the nitrate of ammonia so formed being washed down by the rains, the ammonia is again given off, whilst the ground becomes coated with an efflorescence of earthy nitrates, when it dries on the cessation of the rain. In this way there is formed in the East Indies a quantity of nitrate of potash sufficient to supply the wants of Europe. On the Continent this process is imitated in artificial nitre-beds. In South America, particularly in Chili and Peru, there are found immense deposits of nitrate of soda upon the surface of the soil, and it is now extensively imported into these countries. The source of the nitric acid is, in this case also, from the elements of the atmosphere, and of ammonia; the alkali being probably derived from the sea-salt, which the soils of the coast usually contain. Salt, therefore, serves a useful purpose, and nitrate of soda may also be obtained with nitric acid and carbonate of soda.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. —(Fifteen-years Subscriber).—A variety of *Cattleya Mendeli*.

COVENT GARDEN MARKET.—MAY 11TH.

A STEADY business doing, but with large supplies prices are generally lower.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, $\frac{1}{2}$ sieve	2	0 to 5	0	Oranges, per 100	6 0 to 12 0
" Nova Scotia and				Peaches, dozen	15 0 to 1 0
" Canada, barrel 10 0	13	0		Pears, dozen	1 0 to 2 0
Cherries, $\frac{1}{2}$ sieve	0	0	0	Pine Apples, English,	
Quits, 100 lbs.	50	0	55	per lb.	1 6 to 2 0
Figs, dozen	6	0	8	Plums, $\frac{1}{2}$ sieve	0 0 to 0 0
Grapes, per lb.	3	0	4	St. Michael Pine, each	2 0 to 5 0
Lemons, case	10	0	15	Strawberries, per lb.	3 0 to 6 0
Melon, each	3	0	4		

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichoker, dozen	1	0 to 2	0	Lettuce, dozen	1 0 to 1 6
Asparagus, bundle	1	6	4	Mushrooms, punnet	0 6 to 1 0
Beans, Kidney, per lb. ..	1	3	0	Mustard and Cress, punt.	0 2 to 0 6
Beet, Red, dozen	1	0	2	Onions, bunch	0 3 to 0 6
Broccoli, bundle	0	0	0	Parsley, dozen bunches ..	2 0 to 3 0
Brussels Sprout, $\frac{1}{2}$ sieve	0	0	0	Parsnips, dozen	1 0 to 0 0
Cabbage, dozen	1	6	0	Potatoes, per cwt.	4 0 to 5 0
Capicum, per 100	1	6	2	" Kidney, per cwt.	4 0 to 0 0
Carrots, bunch	0	4	0	Rhubarb, bundle	0 2 to 0 0
Cauliflower, dozen	3	0	4	Salsify, bundle	1 0 to 1 6
Celery, bundle	1	6	2	Scorzonera, bundle	1 6 to 0 0
Coleworts, doz. bunches ..	2	0	4	Soakale, basket	1 6 to 0 0
Cucumbers, each	0	4	0	Shallots, per lb.	0 3 to 0 0
Endive, dozen	1	0	2	Spinach, bushel	8 0 to 4 0
Herbs, bunch	0	2	0	Tomatoes, per lb.	1 0 to 1 6
Leeks, bunch	0	3	0	Turnips, bunch	0 4 to 0 6

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, dozen ..	9	0 to 18	0	Fuchsia, dozen	6 0 to 10 0
Arbor vitae (golden) dozen	6	0	9	Genista, dozen	8 0 to 12 0
" (common), dozen ..	6	0	12	Hydrangea, dozen	9 0 to 12 0
Azalea, dozen	18	0	36	Lilies Valley, dozen	9 0 to 18 0
Begonias, dozen	4	0	9	Marguerite Daisy, dozen ..	6 0 to 12 0
Cineraria, dozen	4	0	8	Mignonne, dozen	6 0 to 9 0
Cyclamen, dozen	12	0	24	Myrtles, dozen	6 0 to 12 0
Dracena terminalis, doz.	12	0	60	Palms, in var., each	2 6 to 21 0
" viridis, dozen	12	0	24	Pelargoniums, dozen	9 0 to 18 0
Erica, various, dozen ..	18	0	42	" scarlet, dozen	4 0 to 9 0
Eucalyptus, in var., dozen	6	0	18	Primula sinensis, dozen ..	0 0 to 0 0
Evergreens, in var., dozen	6	0	24	Solanums, dozen	9 0 to 12 0
Ferns, in variety, dozen	4	0	18	Spiraea, dozen	9 0 to 13 0
Ficus elastica, each ..	1	6	7	Tulips, per dozen pots ..	0 0 to 0 0
Foliage Plants, var., each	2	0	10		

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Abutilons, 12 bunches ..	2	0 to 4	0	Marguerites, 12 bunches ..	2 0 to 6 0
Anemones, 12 bunches ..	2	0	4	Mignonne, 12 bunches ..	4 0 to 6 0
Arum Lilies, 12 blooms ..	3	0	6	Narciss, 12 bunches	2 0 to 6 0
Azalea, 12 sprays	0	6	1	" White, English, bch. ..	0 0 to 0 0
Bouvardias, bunch	0	6	1	Pelargoniums, 12 trusses ..	0 9 to 1 0
Camellias, blooms	1	0	3	" scarlet, 12 trusses ..	0 4 to 0 6
Carnations, 12 blooms ..	1	0	3	Parmo Violets (French) ..	2 6 to 3 6
" 12 bunches	0	0	0	Poinsettia, 12 blooms	0 0 to 0 0
Cornflower, 12 bunches ..	0	0	0	Primroses, 12 bunches ..	0 6 to 0 8
Cyclamen, 12 blooms ..	0	4	0	" white 12 bunches ..	0 9 to 1 6
Daffodils, var., doz. bchs	2	0	6	Primula (single), bunch ..	0 0 to 0 0
Encubus, dozen	4	0	6	" (double), bunch	0 9 to 1 0
Gardenias, 12 blooms ..	1	6	3	Ranunculus, 12 bunches ..	3 0 to 6 0
Hyacinths, Roman, 12 ..	0	0	0	Roses, 12 bunches	0 0 to 0 0
sprays	0	0	0	" (indoor), dozen	0 9 to 1 6
" Dutch, per	1	0	3	" Tea, dozen	1 6 to 8 0
box	1	0	3	" red dozen	2 0 to 4 0
Lapageria, white, 12 blms.	0	0	0	Stephanotis, 12 sprays ..	2 0 to 4 0
Lilium longiflorum, 12 ..	4	0	6	Tropeolum, 12 bunches ..	1 6 to 2 0
blooms	4	0	6	Tuberose, 12 blooms	1 0 to 2 0
Lilac (white), French, ..	4	0	7	Tulips, dozen blooms	0 6 to 1 0
bunch	4	0	7	Violets, 12 bunches	0 4 to 0 6
Lily of Valley, 12 sprays	0	9	1	" Czar, French, bunch ..	0 0 to 0 0



OUR CEREAL CROPS.

WHEAT.

"It has been too hastily assumed that, in the struggle for existence among Wheat growers, the British, the best farmers in the world, will not be among the fittest who will survive. The evidence adduced in the foregoing remarks appears to show this assumption to be unfounded. In all parts of the world, with the doubtful exception of India, Wheat growers have been partly or wholly ruined by the long period of low prices, and British growers have only suffered with the rest. If we are to have another year of such low prices as had prevailed for three years up to the end of 1886, the Wheat area of the world will probably be contracted by many millions of acres, and bread once more may become temporarily dear. At the time of writing, however, there is reason to expect a sufficient rise in the price of Wheat to encourage farmers everywhere to sow at least their usual acreage for another year. A very great rise in price is neither to be expected nor desired, even in the interest of growers, as it would infallibly lead to over-production once more."

We thus quote fully the last paragraph of an exhaustive article on "Competition in Wheat Growing," published last month in the "Quarterly Review," not because we consider it faultless, but rather for its hopeful assurance that a future is possible for British Wheat growers. The advice about Wheat sowing for the current year came too late to be really useful, but so favourable was the season for the sowing of winter corn that we believe there is at least an average acreage of Wheat sown, and, what is even more important, there is already evidence of a decided general improvement in Wheat culture. It was high time that there should be such improvement, for although the average yield of Wheat per acre in this country is much higher than that of most others, yet we know full well it is not what it ought to be.

The standard of excellence to be aimed at in Wheat-growing in this country is a minimum yield of 40 bushels of marketable grain per acre. To show how low the standard has been hitherto, both here and in other countries, we may take the ordinary average yield of the Wheat crop in England as nearly 29 bushels per acre, and even this low rate appears remarkable when compared with such averages as that of India with 10 bushels an acre, Russia 8 bushels, South Australia 7 four-seventh bushels, Ontario 18.2 bushels, Manitoba 19.7 bushels, Chili and the Argentine Republic only 4 bushels, while New Zealand (owing to its naturally fertile soil) has the comparatively abundant yield of 26½ bushels. These figures are taken from the article in the "Quarterly," and are therefore presumably correct. They not only go to prove the superiority of British farming, but also tend to show how much of the so-called farming in other countries consists of the careless easy-going practice of merely turning up the soil and sowing it with corn till all available natural stores of fertility are exhausted. The Wheat so produced is, so far as we have been able to ascertain, a light, thin, inferior grain; but it is so dry and hard as to bear storage well, and so is in a suitable condition for importation.

We are told that this foreign Wheat, with the possible exception of that sent from India, has been supplied at a loss to the growers, and that the Wheat-growing area of the world has already begun to contract, and will be seriously diminished unless the average price is at least 40s. a quarter in England. In support of this there is such a mass of valuable evidence available that the collector of it is embarrassed by its volume. A somewhat lengthy epitome of this evidence is given, and its general tendency goes to show that we may hopefully continue the struggle for supremacy both in the culture of Wheat and in the profitable sale of it in our own markets. In support of this we quote another passage from this valuable compilation of facts, for that is really what the "Quarterly" article is:—"Taking the average value of the English Wheat crop at recent prices to have been £8 an acre, and that of the American crop to be 33s., is there any reason why American competition should drive our Wheat growers from their accustomed industry? We think not, and we maintain that English farmers can continue to grow Wheat at £8 an acre longer than American farmers can keep on growing it at 33s. If the game of "beggar my neighbour" is to go on, the American will be the first to throw up his hand. It is absurd to suppose that there is necessarily a difference of £6 7s. an acre in the cost of Wheat-growing in the two countries. Our climate and soil are better for Wheat than those of America, and the crop here is much less

liable to suffer damage or partial destruction. If we used no manure for Wheat, we should, by keeping to our rotation of crops, grow about double the American average yield. English farmers have been handicapped by high rents, tithes, rates, and railway rates; but all these can be reduced, and wages are only about half as high here as on the other side of the Atlantic, while almost everything that the farmer has to buy is a great deal cheaper in this country in consequence of the Protectionist tariff of the United States."

WORK ON THE HOME FARM.

The rolling of late-sown corn has been done, and both horse and hand hoes are kept briskly at work among the weeds, which are plentiful enough. Everything that is possible must be done to keep down Charlock, of which the plants are more abundant in many a field than are those of the legitimate crop. The wide-spread growth of this pest is a standing reproach to farmers generally, and is one of the most striking signs of the easy-going slovenly practice which has so long been prevalent in farm management. There is no doubt that Charlock seed has been sown with the corn over and over again till it has become thoroughly established in the soil. Such an expression about an annual weed may appear somewhat singular, but it seeds so freely and the seed is so well protected by its stout tough case that it is not easily destroyed. If we plough land infested with Charlock and wait till the pest is in full growth before we plough it in, we dare not hope to have got rid of it, more and more seed being stirred into activity each time the soil is stirred. When land is badly infested with it as much as can be spared should be broken up early in spring and sown with White Mustard (*Sinapis alba*), the growth of which so closely resembles Charlock that both spring up together, and just as they have the seed pods well developed, but before any approach to ripening, they are ploughed in. An immediate repetition of the process enables us to get rid of very much of the Charlock and to turn it to account to enrich the soil which it would otherwise infest and rob. By following with a crop of Swedes or White Turnips with the rows kept far enough apart for a free use of the horse hoe, we secure a useful supply of roots, and are able to destroy any other Charlock which may appear. If the root crop is cleared by folding sheep upon it the land would then be in capital condition for a crop of Barley. We may explain that Charlock is Wild Mustard (*Sinapis arvensis*). The appearance of the Wheat crop is most promising, especially on heavy land, but much of the Barley has suffered from late frost, evidence of which is seen in the yellow hue of the plant. Winter Oats suffered more or less in exposed positions from the severity of the winter, and a somewhat thin plant is the result.

OUR LETTER BOX.

Renovating Old Pasture (W. J.).—It is much too late to apply grass seed to old pasture before the haymaking. It may be done immediately after the haymaking if the weather is showery, but in a hot dry summer success is very doubtful. We therefore advise you to put off sowing the renovating mixture till the beginning of next March. If before sowing the seed you are able to give the pasture a moderate dressing of road sidings, ditch scourings, or similar matter, which has been collected in a heap some time previously, and follow the sowing with a bush or chain harrow, you will promote speedy germination of the seed and ensure a quick strong growth of the plant.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain
1887. May.	Baromet- er at 32° and Sea Level.	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
		Dry.	Wet.			Max.	Min.	In sun.	On grass	
Sunday	8	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.
Monday	9	30.433	59.4	52.4	N.W.	47.7	71.2	43.3	114.3	35.9
Tuesday	10	30.397	56.0	52.1	W.	49.4	69.2	47.6	118.8	44.3
Wednesday	11	30.396	56.2	48.7	W.	50.6	61.5	44.6	112.1	36.3
Thursday	12	30.257	56.2	50.1	N.W.	51.2	61.2	46.4	94.6	40.9
Friday	13	30.115	55.9	53.1	N.	51.8	59.7	50.8	83.2	45.6
Saturday	14	30.213	46.3	41.9	N.	50.4	52.4	42.2	95.2	38.2
		30.359	48.6	45.3	N.	49.2	59.2	38.7	109.4	34.3
		30.310	54.1	49.1		49.9	62.8	44.8	103.9	39.4
										0.095

REMARKS.

8th.—Bright and hot.
9th.—Dull early; fine bright day.
10th.—Fine and bright; white butterfly seen; lunar halo and paraselenæ at night.
11th.—Generally fine morning, but spots of rain about 10 A.M.; rest of the day showery.
12th.—Overcast morning with spots of rain; fair afternoon; evening again damp.
13th.—Alternate sunshine and spots of rain.
14th.—Fine and generally bright.
Considerably warmer than the two previous weeks; fine and bright, and of average temperature.—G. J. SYMONS.



COMING EVENTS

26	TH	Royal Society at 4.30 P.M.
27	F	Manchester Horticultural Show.
28	S	
29	SUN	WHIT SUNDAY.
30	M	BANK HOLIDAY.
31	TU	
1	W	

HARDY FRUIT TREES.

THE various fruit trees grown under glass receive more or less daily attention from the time they break into growth, but those on walls and in the open quarters of the garden are left too much at this season of the year to themselves. The importance of timely action in preventing insects attacking fruit trees has been recently pointed out, and it is quite certain that if aphides or other pests be allowed to infest the foliage nothing but failure can follow. Next to cleanliness come disbudding and thinning the growths. With trees under glass this work is done carefully and gradually, so that by the time the fruit approaches the stoning period only the requisite shoots are left to furnish the tree for the following year, except a few that may be necessary for the well-being of the present crop of fruit and which will be removed directly it is ripe. More generally than not fruit trees on walls are left until the stoning period, or nearly before it is thought requisite to commence the important work of disbudding. How frequently do we see negligence in this department until the shoots stand out from the walls 9 inches or 1 foot, when they are attended to merely for the sake of appearance.

Such treatment might be pardoned if it was the work solely of the busy amateur who could only devote a few hours at night or in the morning to his trees, but these conditions are too prevalent in gardens where those in charge ought to follow a better method of procedure. The treatment that I have depicted means failure, or partial failure, of the crop, and the first stage of degeneracy of the trees. At first the fruit may be abundant, but it is certain to prove of inferior quality in comparison with that from trees that have every want attended to. If this matter is only looked into with the object of finding the effect of such treatment it will be clear that by allowing the trees to grow until they become crowded with young useless shoots the energy is wasted, being devoted to the production of wood that must be eventually cut away. If this were all then the matter might be passed without serious thought, but it is not, for in addition the fertility of the border is being extracted for no purpose. These evils alone should be ample to convince anyone that a better system of treatment is necessary. Not only is the border exhausted but the fruit is robbed of those important essentials which are necessary to bring it through the various stages of development until it attains perfection. This is but one reason why the fruit is of inferior quality on trees that are neglected in comparison with that on trees that are carefully and timely disbudded.

Another of the evils connected with this system is that

the portion of wood which should be the best because the most thoroughly ripened is rendered useless. The foliage being excluded from full light and air is certain to turn yellow and fall after the trees have been severely thinned. Fruit buds cannot form on that portion of wood which loses its main leaves early in the season. The evils resulting from neglect do not end there, for rarely in the following season will growth buds issue from the base of those shoots under the ordinary method of training and pruning; hence the trees become bare in a few years and show at a glance that they have not been under the control of skilful cultivators.

To leave the trees until they become a mass of growing shoots, and then remove large quantities at once, gives a severe check, and not unfrequently ends in a large quantity of the fruit falling during the critical period of stoning. The falling of stone fruit from trees on walls may certainly be attributable to many causes, but none is more prevalent than the one pointed out. If the trees are checked by the removal of large quantities of foliage—and it does not end thus fatally in all cases—the sudden exposure of the young fruit to light is ample to bring about the same disaster. Who has not observed the premature ripening of fruit on a Gooseberry bush when the leaves have been devoured by caterpillars? Such evils as I have pointed out can be avoided if the trees are examined at once and a good number of shoots removed that will not be required for furnishing the tree. This can be repeated again in about a fortnight, or as soon as it is perceived that the fruit is swelling. If disbudding is done as soon as the shoots are large enough to be rubbed off with the thumb and finger a greater number can be removed at one time than it will be safe to cut away if the trees have not been touched until the present time. The longer this operation is left the greater the care needed in the removal of the shoots for fear of checking the trees and crop of young fruit. Tying and nailing the summer shoots is a simple and easy process when all are removed that are not wanted for furnishing the tree with bearing wood. A judicious system of disbudding, stopping, and pinching during the spring and summer leaves but little pruning to be done during the cold short days of winter. Practically, only the wood that has carried the fruit remains to be cut away, and even this is best done directly the fruit has been gathered. Such treatment gives the trees every advantage, for light and air can penetrate freely to every portion of their branches, provided the main branches are thinly disposed. If the roots are in fertile soil, and care and forethought be exercised in regulating the shoots, fruit of fine quality can be insured if the weather prove warm and genial.

The question may arise, What can be done early in the season to pyramidal and bush-trained fruit trees in the open quarters? A little attention in rubbing away wood growths that will not be wanted for furnishing the tree will save considerable labour in cutting away useless wood a few weeks hence. It can be done now without fear of injury to the trees, but if left until the trees become a mass of shoots, then to be cut away, they are certain to be seriously checked.

The shoots of Gooseberries and Currants may also be pinched as soon as they have made 4 or 5 inches of growth. This will insure the lower leaves remaining upon the trees until autumn, and thus husband the resources of the tree for the perfection of the crop of fruit and flower buds for another year. Young vigorous trees if they are not pinched make long gross shoots that must be cut away in

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autumn, but if stopped now they will produce two or three shoots instead of the one of suitable wood for furnishing the tree quickly and carrying a crop of fruit next season.—WM. BARDNEY.

ROSE-GROWING FOR BEGINNERS.

(Continued from page 371.)

ROSES ALL THE YEAR ROUND.

I AM not one of those who care much about having things out of their proper season—house lamb at 5s. lb., salmon at ditto, Strawberries at 1s. an oz., Pears at half a guinea each, have no charms for me; and, applying the rule to Roses, I fancy we think all the more of them if we do not get them every day in the year. But those who desire this, and have the means, can get very near to it in this way. From July onwards they can have Roses in the open right up to the autumn frosts; then a nice lot of Teas grown on in pots for the purpose, plunged out in open beds in summer, may be brought under glass, and being full of buds, will give blooms up to and beyond Christmas, provided a proper temperature can be had. Then comes a little break until the forced Roses come into bloom; when these come in the supply may be kept up until July comes round again. The Teas above mentioned would require to be put out about the end of May, and they should be placed on ashes or other hard material, having the spaces between the pots filled in with leaf mould or soil. They should be plunged over the rim of the pots in this; if leaf soil be used the time saved in watering will be considerable. Any buds that appear should be removed until within about six weeks of the time it is proposed to bring the plants under glass.

FORCING ROSES.

Let it be understood to start with, that all Roses intended to be forced, or to be made to grow and bloom out of their natural season, must be thoroughly established, and have the pots full of roots, and the wood ripe. To attempt to force small plants freshly potted, is to court defeat. Let it be understood, too, that if we want plants to force, we must have a stock of them for that purpose alone. The beginner must not imagine that after a pot Rose has been blooming all the season out of doors, that it can be taken indoors and made to keep on blooming all through the winter and spring following. If a man were to work all day, and sit up all night, for a few weeks, he would find at the finish that he would require a good long sleep to recover himself—so it is with a plant, and so in forcing a Rose it must have its four seasons, just as a plant grown in a natural way; there must be a time for growing, for flowering, for ripening, and for resting. The H.P. requires to be attended to in this respect much more particularly than the Tea or Noisette, and for this reason these latter are much more suited for growing where we want a constant succession of bloom.

Supposing we buy a number of healthy plants in pots in May—or select some from our own stock—we first look to the roots, and repot those that we think will fill the new pots with roots during the season of growth. Let them, then, be plunged out and grown as outdoor plants, and encourage them to make all the growth possible. About August they should have made some nice shoots. They should now be taken up, and placed either in a cold house or under a wall, or in some position where they will become fairly dry at the root— withhold water, just giving enough to keep the plants alive—they should be dried off gradually. In this way they will ripen early in the season, and this will prepare them for early blooming the following spring.

About Christmas they may be pruned, and in about three weeks they may be brought into a little heat. There must not be any great jump in the temperature; begin with 5° above outside temperature, and increase 10° in about three weeks, and 10° more during the following fortnight. A temperature of 60° is quite enough early in the year, but the temperature must in all cases be regulated to the growth. If the plants grow well and strong with a high temperature, there is no harm being done, but if they come weak and drawn, then the temperature must be kept down. The night temperature should be 10° below the day, and the plants must have all the light possible.

The watering of Roses and other plants in pots is one of the most important points in the whole of their culture, and it is one in which many beginners fail. It is impossible to lay down any rule as to how often a certain number of plants will require water, each individual plant will have to be treated according to its requirements. Plants with many leaves on, and where the roots fill the pots, will very quickly get dry, while, on the other hand, those newly potted, or in cases where there are few roots or few leaves, or where there is little or no growth going on, require

very little. In hot weather, where plants are in full growth under glass, they may require watering twice a day. It is an infallible sign that water is wanted when the young shoots and leaves of a plant in full growth droop and look as if withering, though this often occurs when the sun is very hot, even when the soil is thoroughly moist. When the leaves fall off, or turn yellow, it is a sign that the roots are kept too moist.

The best and easiest way to ascertain the state of the roots is to rap the side of the pot with the knuckles; if the pots rings clear and bell-like, water is required; if it sound dull and heavy, none is necessary. It may happen that when a plant has been in a frame, or has been neglected at any time, the soil may be discovered to be quite dry. The only way to thoroughly moisten the roots when in this state, is to plunge the pot over head and ears into a bucket of water for a few hours. This drying may go so far as the plant appearing to be quite dead, and the shoots shrivelled up like dry chips—the bucket will generally restore these apparently dead ones to life again.

Another matter that often deceives beginners. We often read instructions written to “withhold water,” or “water sparingly.” This does not mean that we are to give a dribble or sprinkling now and again; but what is intended to be conveyed is, that at all times when water is given, the soil should be made thoroughly moist, but that this should not be done so often. In forcing Roses no air or ventilation is necessary. A rise of 10° or 15° in temperature from sun heat will do no harm; but if air is to be given at all, it must be by means of top ventilators, and then only about an inch should be opened. The effect of opening wide the ventilators or side lights may often be seen in an hour; all the young shoots will be as white as if dusted with flour, and once arrived at this stage, we may conclude we are on the high road to failure. The floor of the house should be kept moist, and the plants should be syringed once, twice, or three times each day, so as to maintain a moist growing temperature. As soon as the plants have any leaves on them they should be looked over and disbudded where they require it. From this stage forward they should be syringed at least twice each day—but beware of too much damp, and hold your hand in wet weather—and to prevent mildew and insects, and to keep the plants healthy, a little softsoap should be added to the water. It should be added at the rate of $\frac{1}{4}$ oz. to each gallon of water, and the best plan is to dissolve half a pound of the soap in boiling water, and then to bottle it off, putting a little into the watering can as required. Some people recommend that the water used for syringing should be warm—all I can say is, that I always use it cold, and I never noticed any bad effects from it.

As soon as we see a single green fly on the plants we must fumigate with tobacco paper. A proper fumigator costs, for a small house, about 5s., and will soon save itself in tobacco paper alone, as compared to a flower pot used in place of it, and which never gives satisfaction. I never have any mildew under glass, and very little outside, but the first spot that is seen is the signal for having all the pipes daubed with sulphur made into a paste and put on with a brush. The better plan is not to wait for the mildew to appear, it is pretty sure to come, but to dress the pipes with the sulphur about once a fortnight, on the system that “prevention is better than cure.” Caterpillars will be found active on forced Roses, these must be removed by hand.

As the plants make shoots these must be staked and tied, as advised before. Climbers should be trained horizontally, so that all the buds may break. Where they are attached to wires they should be tied so that the bark does not touch the wires. I have seen shoots cut half through by this means, and with Maréchal Niel this generally ends in canker. As the leaves become larger and more numerous, water will be required in greater quantity. At this stage soot water is very beneficial. The best way to make it is to put a cotton bag containing about 6 or 7 lbs. of soot into thirty gallons of water. The bag may be squeezed occasionally. As soon as the buds are formed, weak manure water may be given about three times a week. This is best made with fresh horse-droppings or cow manure, and should not be darker in colour than pale ale. When the first growths of Tea Roses come blind, the shoots should be tied down horizontally, and if kept growing, the buds will quickly break again, and generally speaking each little shoot will carry a flower. If gross shoots appear while the plant is well furnished with good young wood, they should be at once removed, but these gross shoots often carry a number of magnificent blooms.

After the plants have flowered the H.P.'s should be gradually hardened off, either by the reduction of the temperature or removal to another house, and eventually plunged outside, when they will make a summer growth. Before being plunged they should all be repotted, or this may be done directly after flowering, this latter plan giving the plants a start in the new soil. About the beginning of August they should be again taken up and treated as

before described. The Teas may be treated differently. These may be kept going under glass until June, and will give a quantity of beautiful flowers. After this date, they too, should go outside, and be treated as advised for the H.P.'s. It is not a bad plan to have our benches constructed so that the pots may be covered with leaf mould. This does away with a lot of trouble in watering. Among the H.P.'s the full-flowered varieties are the best for forcing, while all the Teas may be used for the purpose. Where our Tea Roses are planted out under glass we must ripen the wood by throwing open all the ventilators and doors, and withholding water from the borders.

GENERAL TREATMENT OF ROSES IN POTS.

Here the same directions as given for "forcing" may be followed to a great extent. In a cold house Roses can generally be got to bloom fully six weeks earlier than those in the open. Where we have no heat the atmosphere must be carefully watched. Here we have no means of drying the house if we make it too damp. If this happens, and is followed by constant wet weather, the beginner may have a chance of knowing what "damping off" means.

When Roses are grown under glass to bloom at the natural season, air may be given at all times, but draughts from side lights should be avoided. The house may be closed early, say 2.30, to bottle up the sun heat, which will assist to bring out the flowers earlier. Bearing in mind the above remarks, the floors may be damped and the plants syringed in fine weather. The same insects, &c., will attack these Roses as those which are forced. Mildew is the most to be feared. Once this gets a firm hold in a cold house, nothing can cure it, but if the softsoap treatment be commenced and persevered in, I think it will prevent its appearance. Dusting dry sulphur on the leaves is recommended, and also an application of sulphide of potassium. The latter is a solution, and may be syringed or sprayed on. The after treatment of these Roses should be similar to what is advised for the forced Roses, except that they will ripen naturally, just as our plants in the open do.

Sunshine will not hurt Roses under glass, but when in bloom they will last longer if some kind of shading be adopted; summer cloud may be applied to the glass, or thin whitewash put on with the syringe, or thin canvas or scrim may be used.

In writing of potting, I omitted to say that clean pots should always be used. Old pots can be easily cleaned with a hard brush and a little water. Pots should not be used when they are wet.

One word further about mildew. I am told, and I believe it, that I owe my immunity from this, to some extent, to my open and sunny position; and further, that some growers of Roses, who stand very near the top of the tree, in consequence of the position of their gardens and houses, are, do all they can, unable to cope with it.—D. GILMOUR, JUN.

(To be continued.)

VINE JOTTINGS.

VERY reasonable advice has been given in two well written articles by Mr. W. Iggulden, and now while I am busy with my Vine work I would like to append a few notes. First a line on stopping and tying. I suppose no two men agree to any prescribed rule for the first operation. I vary my practice according to the growth of different varieties, but generally stop at one or two leaves above the bunch; however, in strong breaks, to encourage the weaker laterals, I stop at one leaf, then to cover a space have several times allowed three leaves above the bunches. The eye is the best judge of what to do, especially when you know the peculiarities of each Vine. Lose no time in stopping, not waiting for the whole of the growths on a rod to elongate, but top them just as they are ready. I firmly believe this is a great help to uniform growth. Always use the finger and thumb, and no knife at any season of their growth, but scissors are used sometimes for convenience. When the Vines are not less than 15 inches from the glass do not be in a hurry to tie out the laterals, and make sure of the main rod being firm. It is also very important, to my mind, that all sub-laterals be stopped, giving them one leaf. Make a special effort to do all pinching and stopping before Vines come into flower. By carefully staying the laterals with loose ties until they are ready for flowering there is but little risk in getting shoots into position, but of course even then care is necessary. Buckland Sweetwater, a strong grower here, is the most brittle, so I leave the final tying down till the Vines have set their fruit. Reverting again to stopping, I find that most of my Vines have been stopped twice before coming into bloom; sub-laterals also above the bunches. Those below are never so strong, once pinching generally sufficing for these.

Aim at having strong laterals with good foliage; for this room is required. Great mistakes are made by leaving two or more laterals at a spur. It is true I have two in some cases, but they are for covering purposes. I like to see bold foliage standing clear of the Grapes. This, while giving plenty of shade, is far preferable to a thicket of crowded leaves. Having personally to attend to some 570 feet of vineries, representing nearly 200 Vines (all late), I know that it is easier to write this than to do it; yet with thought and system, theory can be brought into practice. I consider the wild growth of Vines in their early stages is against good Grape growing, as I believe that very few new roots are made before the flowering time; therefore I think the less growth the Vines have to support till then the better; besides, by close and early pinching we increase the size of the leaves. In tying keep the points of the laterals from touching the glass; then, provided these have a cross or back tie to hold them until ready to open the flowers, no harm will be done. I like to have them in position then for fear of damage in setting.

This reminds me of the very great benefits accruing from setting Grapes. Having satisfied myself on this point I now assist all, even Black Hamburgs. I have proof from past experiences that setting is not all that is required to produce perfect Grapes. This is, however, a step in the right direction. A very high strong north wind one day compelled us to fasten the ventilators down; and there not being any sun the fire was increased. At noon my son found that ventilation was a necessity, for the flowers refused to expand, very few "caps" falling. I thought with an increase of temperature we should have had a corresponding number of flowers open. Has anyone noted how the "caps" adhere on the Buckland Sweetwater? the hand being needed to remove them.

So much for stopping, tying, and setting; now a few lines on feeding. When is it best to feed a Vine? Water can be given at all times to advantage, even in winter. Of this I have very pleasing evidences, the water and a little fire in their dormant state doing wonders. Do the Vines before new roots are made derive full or any benefit from early feeding? I say not, and make the assertion not without much thought. With an ordinary top-dressing of the usual compost and a slight top-dressing of manure to save water, nothing further will be required till after Grapes are set.

I have been puzzled the last few cold mornings to know the meaning of Lady Downe's leaves being covered with dewdrops, while in the same house is growing Gros Maroc, Alicante, and Alnwick Seedling, and have come to the conclusion the low 60° temperature is the cause. The other varieties being dry under the same conditions shows very plainly which are the hardier. Another house with Lady Downe's and Alicante, owing to a higher temperature, is very different. I am not aware that Grapes grown in the latter house will keep better. I know they were the last—this time to be sold—but this was more because the bunches were small. Still, I am inclined to believe that Lady Downe's after starting likes more fire than is generally given to it, also more ventilation.—STEPHEN CASTLE, *West Lynn*.

POTATO DEGENERATION.

OUR friend "Thinker" accuses me of being illogical, and as he seems capable of almost proving black to be white, it is quite a waste of space for me to attempt to deny the "soft impeachment." At the same time I must still contend that the deterioration of the Potato is principally traceable to careless cultivation, being therefore not so much the fault of any inherent weakness as Mr. Murphy would suggest, but rather more due to causes over which we have some control. This is plainly borne out by "Thinker's" arguments, and if anyone is illogical in the matter it is he. If by degeneration we are to understand that a positive decay has set in, then I still assert it has not yet taken place; but if it is meant that it is only a temporary and remediable decay, and that is all I admit, illogical is not applicable to me, in this case at any rate.

Scotch Champion was as good with us last year as it has been, and was the favourite in the dining-room. It improves, in fact, as at one time the quality deteriorated when the tubers were kept much after December, but this year they were good in April, and no doubt would have remained good for some time longer. This, then, is not generally a weakling, nor never will be. We will drop the Ashleafs, as these seem "too much" for my deep-thinking opponent, and take up his "much-prized" Flukes. Fortunately I am old enough to be able to write upon these, though, in all probability, Mr. "Thinker" fancies he has defeated me this time. This Fluke, about a quarter of a century ago, was of the greatest value for baking purposes, in fact no other sort then and since cultivated was at all equal to it in that respect, and it also kept and boiled splendidly. But what about its one great weakness—viz., extreme liability to disease? I have seen cartloads of the grandest tubers of this variety all very badly diseased, the whole crop really succumbing. Does "Thinker" maintain that a stock thus naturally

weak would ever thoroughly recover? or is the disease so unlike all other diseases, whether fungoid or otherwise, only temporary in its effect? If my theory is wrong, and "A Thinker's" right, how comes it that neither the latter nor his friend, "a first-rate Potato grower," tried the experiment of growing a quantity of seed Potatoes either in rough frames or on a warm border? The latest Potato in cultivation can, with a little extra trouble, be induced to mature early on a warm border. Here they should "assimilate and secrete the food gathered from the earth," and be either at once or gradually restored to their pristine vigour. They might, however, restore them to a profitable state, but never make them disease-resisting, and consequently such an unreliable sort must go out of cultivation. I should be glad to have a few tubers of the true old Fluke to experiment with, but where are they to be obtained?

As some readers are aware, I delight in upsetting time-honoured "fads," and those who will take the trouble to refer to my former notes on the degeneracy of the Potato will find I am well supported, this time by "A Thinker," even to the extent that change of seed is by no means generally to be recommended, yet I am privately told I must be mad to deny the efficacy of such a change under any conditions. For several years past I have been favoured with samples of quite new sorts of Potatoes for trial, including many of Messrs. Sutton's valuable novelties, but I have always taken care to point out that the first year's crops were no criterion of their worth, for the simple reason that I always met with greater success with seed of my own saving. Perhaps if I had unduly coddled them we might have lifted much larger crops; but with all due respect to those who think and act differently I venture to say the new sorts, to be fairly tried, ought to rough it with the rest. It is this favouritism shown to bought or exchanged seed that has had something to do with encouraging the idea that a change is so very profitable. Those that get the best positions as well as the best worked and most freely manured ground should yield the heaviest crops; do not, therefore, give all the credit to the change of seed.

The temporary deterioration of a Potato being traceable to the weakening of the sets from premature sprouting, disease, or other causes, it, I think, naturally follows that success with a change of seed is attributable to either better stored or healthy sets, or what is also probable enough, to the sets containing a greater amount of starch. It must, however, be remembered that all the tubers do is to form stout sprouts, the latter soon becoming independent. In reality I believe the haulm keeps the old tubers plump and does not derive any further benefit from them. At any rate some of the best crops of Potatoes I have yet lifted were from sprouts rooted apart from even a portion of old tuber. I believe it was a German idea, which originated in a time of scarcity, to plant the sprouts and eat the tubers, and is, by no means an impracticable one. The question arises, If the imported or changed sets contain material for building up stronger sprouts than may seed raised on the home ground, is it not possible to repair this deficiency in the latter and thereby avoid the trouble and expense of changing seed? Where are the heaviest and in all other respects best crops of Potatoes obtained? I answer in newly broken up pasture land. It is the virgin soils both here and in America that grow the finest crops, but they will not continue to do so without restoring to the lands the food exhausted by previous crops. It is to the neglect of this precaution that I partly attribute the temporary deterioration of the Potato; and if instead of sending hundreds of miles for fresh seed, or even of purchasing it nearer home, the same amount or less was expended on some kind of artificial manure, the crops of Potatoes would be materially increased, and, what is of importance, successive crops, whether these be cereals, roots, or any member of the Brassica tribe, will also derive much benefit from these comparatively light dressings of manure. Farmers use artificials and lime much more freely than gardeners, yet it is the overcropped humus-abounding garden soil that stands in the greater need of it. Anybody's special Potato manure, bone manure, superphosphates, sulphate of ammonia and kainit, guano and soot, may each and all be yet advantageously applied to the breadths of Potatoes, being merely dusted between the rows and hacked or hoed in prior to a rainfall or moulding up, this being a sure method of preventing the deterioration of all but the non-disease-resisters.

According to "A Thinker" it is of the greatest importance that the sets be properly matured, and I am afraid therefore he will not have much respect for the late Mr. McIntosh's teaching. Much of the latter's writing has evidently been largely drawn on by authors now living, and on the whole he may safely be termed a good authority at the present date. He held or recorded a very queer opinion, however, as to what constituted a good seed tuber, and as "A Thinker" favours me occasionally I may by way of return give a quotation that may be said to indirectly corroborate his theories. In McIntosh's "Practical Gardener," published in 1829, the following occurs:—"In Denbighshire we call the hilly or unripe Potato, the wet Potatoes, and those from the rich soils and warm situations, where they ripen perfectly, we call the dry Potatoes, although exactly the same varieties; the wet or unripe are reckoned the best for seed and the dry for food. The Potato tuber is a perfectly organised system, in which the circulation regularly proceeds, and if suffered to ripen will then tend to decay; but if separated before ripe from the stem or stalk, which furnishes it with blood or fruit sap descending from the leaves, the circulation of the blood sap is suddenly arrested."

"The ripe Potato, having performed all its operations, becomes more inert, but the circulation of the sap in the unripe tuber having been stopped, it starts more readily and with greater vigour when planted; the one seems to die, worn out with age, the other seems accidentally to

have fallen asleep, and when awakened possesses an unspent vigour and energy. Placing the Potatoes upon the gravel, or in the sun, or any dry but not a grass walk, has the effect of stopping the circulation in the tuber, in which Nature has provided resources to carry it on to an extraordinary degree, unless so stopped."

If this was the system generally in vogue fifty years ago, which I question, it may have led to the deterioration of the varieties cultivated, and as we were supposed to have hotter summers in those good old days, the crops were more often quite as "dry" as "A Thinker" could wish to have them, and I do not believe their deterioration can be attributed to the planting of either "wet" or "dry" sets.

In support of my previously expressed opinion that the ground is the best place for keeping seed Potatoes I may mention that the old Ashleaf lifted early, stored in a light and cool place, and planted on a warm border early in March, are now 12 inches high. Others lifted late in December, and planted early in April, are 6 inches high, while some left in a warm border all the winter are only just above the surface. The "weakling" Champion with us matures early, and if lifted sprouts much too early, but is quite late enough when left in the ground.—W. IGGULDEN.

FLORISTS' FLOWERS IN MAY.

THE season has been an unusually late one, and in many respects very trying. Even now (May 14th) we are experiencing what is called in these parts (East Kent) "the Blackthorn winter," which means a cold, bleak, northerly wind; and although the Blackthorn is late this year, yet it has not failed to bring with it its wintry companion, hence all florists' flowers are late, and many operations connected with them will be late also, for however rigid we may make our rules with regard to them we cannot regulate the weather.

AURICULAS.—In ordinary seasons these would have been out of flower and placed in their summer quarters previous to repotting, but a large number of mine are still in flower, and they will have to remain for a little while longer in their present quarters before that operation is performed. As I have already stated, I have not top-dressed mine this spring, and I never had better plants or finer flowers. The cool weather has done one thing, at any rate—it has kept them in flower for a long time, and so given us more enjoyment of them. Before the end of the month, however, they will have gone out of flower, and as I do not save seed I shall have no occasion to keep them any longer in their winter quarters. A place should be prepared for them under a north wall or hedge, and the frames removed there. The compost should be ready for potting, and should consist of good fibrous loam three parts, decayed cow manure one part, leaf mould and powdered charcoal one part, and a small quantity of road grit or sharp sand. This should all be well mixed together and well chopped up, but on no account to be passed through a sieve. In potting take care that the pots are perfectly clean. Place an oystershell or flat piece of broken pot over the hole, then a good handful of broken pots, on top of this some of the coarser pieces of loam in the compost, then fill up the pots about two-thirds. Examine the plants before repotting, cut off any moderate length of tap root, examine the collar well to see if there are any woolly aphids about it, and if detected first brush it off, and then wash the plants in clear water. In brushing it off take care that it is done away from the potting place, as they are by their woolly covering easily carried about. Place the plant in the pot with the roots distributed evenly all round, then fill up with the compost, potting firmly, and leaving some of the finest of it for the top; then water gently, and place them in a close frame for a few days, after that let them have all the air possible, and water regularly. Take off the large outer leaves as they decay, but not before, and leave them in their summer quarters. I should have said that previous to this operation the pot or frame should be fumigated so as to get rid of any green fly that may be about the plants.

CARNATIONS AND PICOTEES.—I have again returned to growing these in pots, as I suffered very much from the last two winters when I grew them in beds. After they were potted they were placed under cover, just simply sashes, where I bloom some of my Chrysanthemums. As this is open all round they get plenty of air, while they are protected from the rain, snow, and high winds. Some are now spindling—i.e., the flower stems are lengthening; these will require to be tied up and the pots kept clear of weeds; watering of course must be attended to, as they do not receive any rain. Where they have been up to this time in a house the pots will now require to be placed out of doors; but as my plan gives me all the advantage of protection without in any way drawing up, they will probably remain where they are. Should aphides appear they should be at once got rid of by brushing them off.

GLADIOLI.—Mine are showing very strongly; they will not require during this month any special culture. The hoe should be run between the rows, and the weeds in the rows taken out with the hand, as it is somewhat dangerous to use the hoe between the plants.

PANSIES IN POTS.—I am more than ever convinced that for the south of England this is the only way to cultivate them, and mine are now in their full beauty. Show Pansies have been very much elbowed out of the way by the wonderfully coloured Fancy flowers, which are so large, showy and effective in colour, and perfect in shape, while being of more robust habit, they do not go off in the same way as the Show varieties are apt to do. It will be well now when any small shoots appear sufficiently strong for the purpose to take them off and place them round the sides of a pot in a cold frame, as they will at this time root easily. It is of no use taking strong pithy growth, as this will

never strike. The difficulty that we experience with them in the south is their care during the summer; and this is where the Scotch growers have the advantage in their cooler and moister seasons; and yet few grow them better than Mr. Hooper of Bath, and his situation and soil are dry and warm enough for anything, so that there is some way of overcoming this difficulty. One great advantage of growing them in pots is that you are not annoyed by having your best blooms eaten off by snails and slugs. Another is that you have no need to stoop to admire the flowers, and this is an advantage which I daily more and more appreciate.

RANUNCULUS.—This has been a very trying season for them, rejoicing as they do in moisture, and objecting very much to the cold, dry, searching winds that we have been exposed to for some time. My beds show a lack of vigour which is very distressing; the plants are there, but they do not cover the ground as they ought to do. When there is no danger of frost the beds may be well watered, but it is best to do this below the rows and not to wet the foliage. This very beautiful flower ought to be more grown than it is. I do not think anything can be more lovely than a well-grown bed; the colours are so varied and the form so symmetrical that they are always sure to please, and now that the Dutch growers, especially Ant Roozen, are giving more attention to them, we may hope that all inferior varieties will be weeded out and only good ones retained.

TULIPS.—I can say but little of these, as my experience is very limited; they are, however, late, as everything is this year, and it is not likely, I fancy, that they will be as good as usual this season.—*D., Dea'.*

LIQUID MANURE FOR FERNS.

ALMOST all stove and greenhouse ferns are much benefited by being watered once a week with liquid manure, but no plant should be watered with it that has not its pot filled with roots. When it is desired to have large plants in small pots, and these are often desired for room and table decoration, nothing will benefit them so much as liquid manure, but ferns which were potted recently, and have yet much of their new soil to take possession of, do not require it; in fact it will do them more harm than good. Ferns, however, which were potted last year, and have not undergone that operation this season, will be greatly benefited by it, and we have given such plants a supply twice weekly with advantage. We have tried various kinds of manure, but none of them have had such good effect as that from cow or horse droppings. Artificial manures, although excellent for some plants, are rather hot for ferns, but the liquid from the droppings is cool and refreshing. As to the strength to apply it, that depends entirely on the condition of the plant. Robust plants with many roots in an active state may be supplied with it stronger than weaker plants, or those inclined to be sickly, but we generally give it diluted with half the quantity of clear water.—*M.*

RATING MARKET GARDENS.

In the Court of Appeal on Thursday, the 19th inst., before the Master of the Rolls, Lord Justice Fry, and Lord Justice Lopes, the case of *Purser v. the Worthing Local Board* came on for hearing. This case, to which we have previously referred, raised the question whether glass houses and greenhouses, in which fruit, flowers, and vegetables are grown in the way of a man's trade for market, are to be assessed at their full net annual value, or only at one-fourth thereof under sec. 211, sub-sec. 1 (b) of the Public Health Act, 1875, which provides, *inter alia*, that "the occupier of land used as market gardens or nursery grounds shall be assessed in respect of the same in the proportion of one-fourth part only of the net annual value thereof." George Purser was a grower of fruit, vegetables, and flowers, carrying on business at Worthing, and describing himself as a "market gardener and nurseryman," and he occupied a piece of land about 1a. 1r. in extent, upon which were sixteen glass houses or greenhouses of various sizes, substantially built, and used by him for the purpose of growing Tomatoes, Cucumbers, Grapes, flowers, &c., in the course of his business. The Local Board rated him in respect of the glass houses or greenhouses on their full net annual value. The Divisional Court (Mr. Justice Day and Mr. Justice Wills) held that the land covered with glass was a "market garden" within sec. 211, sub-sec. 1 (b) of the Public Health Act, 1875, and the occupier was only liable to be rated at one-fourth of the full net annual value. The defendants appealed.

Mr. Lumley Smith, Q.C., and Mr. English Harrison, for the defendants, contended that the glass houses, which were substantially built, with brick walls let into the ground, ought to be rated as buildings at their full net annual value, and were only adjuncts to and not part of the market garden. They cited "*South Wales Railway Company v. Swansea Local Board*" (4 E. and B., 189), and "*Newport Docks Company v. Newport Board of Health*" (2 B. and S., 708).

Mr. Charles, Q.C., and Mr. A. Glen (Mr. Forrest Fulton with them), were not called upon.

The Court yesterday dismissed the appeal.

The Master of the Rolls said that the case was a *clear* one. This land was not used as a pleasure garden, but as a market garden. It was used for the purpose of utilising the soil to grow vegetables and other things which the market gardener sold in the way of his business. Was it the less "land used as a market garden" because it was covered with glass? Certainly not. That in reality was the whole case. The Lords Justices concurred.



ORCHIDS AT MESSRS. J. VEITCH & SONS, CHELSEA.

THE large Cattleya house in Messrs. J. Veitch & Sons' Nursery, King's Road, Chelsea, of which we gave an illustration a year or two since, now contains a magnificent display of *Lælias* and *Cattleyas* such as is worth a long journey to see. Earlier in the season there was a charming exhibition of *Cattleya Trianae* varieties, with the fragrant *C. citrina* and others; but a most beautiful succession is afforded by *Lælia purpurata*, of which there is a large number of plants and some superb varieties. This *Lælia* is one of the finest Orchids grown, and when massed as it is at Chelsea it produces a grand effect that can scarcely be excelled or even equalled by any of its relatives. Some idea can be formed of the appearance of this house when it is stated that between 500 and 600 flowers of *Lælia purpurata* are fully expanded with others to come, the pure white sepals and petals contrasting delightfully with the rich purplish crimson lips and the dark green foliage. The house and Messrs. J. Veitch's system of culture evidently suit these plants admirably; their



Fig. 72.—*Odontoglossum Edwardii*.

growths are strong and well matured, the flowers large and well developed, and the colours pure or rich—they constitute indeed a floral bank such as could scarcely be seen elsewhere. *Cattleya Skinneri* is represented, a number of freely flowered specimens, several having forty to fifty fine rosy crimson flowers each. *C. Mossiae*, *C. Mendeli*, and *C. Acklandiae* contribute to the general effect, while of *Lælias* there are scores of the pretty *L. elegans* and the bright orange scarlet *L. cinabarina*, which form an important portion of the show. Several plants of the interesting Cow Horn Orchid, *Schomburgkia tibicinis*, are flowering, the scapes being 5 or 6 feet long, bearing twenty or thirty flowers each, of a curious purplish colour and a neatly veined lip. The hollow conical pseudo-bulbs are of great size and constitute the favourite haunts of ants where the plants are found in a wild state. Were this house the only one to be seen at Chelsea the nursery would be well worth a visit, but attractions innumerable are found in all the structures devoted to Orchids and other plants.

Many *Cypripediums* have a house appropriated to them, and a capital representative collection is now in flower, comprising many of the finest species, varieties, and hybrids, the latter of which have mostly originated

in the nursery. Very notable are the handsome *C. Schroederae*, *selligerum majus*, *elliolare*, *barbatum Warneri*, *Lawrencianum caudatum*, *Morganiae*, *grande*, *Veitchei*, *Druryi*, *Hookerae*, *superciliare*, *Stonei*, and *Schlimi album*, some of which are represented by large specimens, and all by healthy vigorous plants flowering freely. Other houses in the same range contain *Dendrobiums* in variety, the gold and white *D. thyrsiflorum* being very handsome, bearing long racemes of large flowers. The white and orange *D. Jamesianum*, the delicately elegant *D. Devonianum*, the rich yellow *D. chrysotoxum*, the distinct and pretty *D. tortile*, and the old useful favourite *D. nobile* are all in excellent condition, but the last named has been remarkably beautiful, large bush-like plants having masses of flowers, the varieties some of the best we have seen, suggestive in the richness of colouring of the celebrated *D. nobile nobiliss.* Following this are the houses appropriated to *Aerides*, *Vandas*, *Cœlogynes*, &c., one specimen of *A. expansum Leonie* being of a very remarkable character, a huge vigorous plant scrambling naturally over an old tree stump, and bearing twenty-four spikes of thirty to forty flowers each. This fine Orchid is not very generally known in gardens, its relative *A. falcatum* or *Larpentæ* being more frequently seen, but the species itself is very handsome, while the variety which first flowered in an Italian collection is superior to many of the family usually cultivated, the flowers being large and of a delicate rosy blush tint. *Aerides curvifolium* is also in good condition, together with *Vanda Parishii Marriottiana*, *Cœlogynes Massangana*, *tomentosa*, and *Dayana* with their long drooping spikes, *Trichopiliæ*, *Phalænopsis grandiflora*, *Odontoglossum vexillarium* and *Roezli*, the floriferous white *Aceranthus Leonis*, the large-leaved *Dendrochilum latifolium*, the wax-like beautiful *Epidendrum bicornutum*, and the white *Cypripedium niveum* render the houses very attractive. *Lycastes*, *Phalænopses*, *Calanthes*, and other important genera of Orchids are represented by houses of excellent plants.

A profusion of flowers has rendered the cool house gay for some months, and almost every week there appears to be an increase in the number of attractions. *Odontoglossum crispum* in many varieties remarkable for their beautiful shape, broad petals and sepals, either pure white or heavily spotted; *O. Pescatorei*, similarly varying from the superbly spotted *O. Pescatorei Veitchei*, which was a representative recently in the collection, to the pure white forms; *O. gloriosum*, *O. eirrhosum*, *O. luteo-purpureum*, *O. Cervantesi decorum*, *O. Rossi majus*, *O. Halli*, *O. constrictum*, with many others, are flowering strongly, while with them are associated numerous plants of *Oncidium Marshallianum*, the clear yellow *Oncidium concolor*, and the bright orange-red *Epidendrum vitellinum majus* is employed with good effect. Very notable for its distinct colour is *Odontoglossum Edwardi*, which has now been in flower for two or three months, and has attracted much attention. Of this Orchid, which is destined to become very popular, Mrs. J. Veitch have an uncommonly fine variety (fig. 72, page 415). These flowers much larger than in the ordinary type, and of a rich purplish lilac hue, contrasting capitally with the white forms of *O. crispum*. The flowers are borne in very large panicles, last a surprising time in perfect condition, and are agreeably fragrant.

In one of the houses devoted to seedling Orchids a most interesting hybrid *Phalænopsis* flowered last week, showing in a remarkable manner the characters of both parents. It was obtained from a cross between *P. grandiflora* and *P. violacea*, the former being the seed parent, and the seed was sown in January, 1882, this season being the first in which it has flowered. The leaves are plain green, much resembling *P. grandiflora*, while the flower is more like an enlarged *P. violacea*, and it might be not inappropriately termed *P. violacea grandiflora*. The flower is nearly 3 inches in diameter, the petals about three-quarter-inch across, ovate, pale creamy white, stained with purple at the base, the sepals being similar in colour and size, but rather more acute in form. The tip has relatively large purplish-crimson wings, and a prolonged acute centre of a purple hue. It is a neat and attractive flower, and one of the most interesting of the few hybrid *Phalænopses* yet obtained.

In other houses there are hosts of flowering plants, including all the usual greenhouse and conservatory plants. *Anthurium Schertzerianum* is wonderfully fine, as also are the *Gloxinias*, while Ferns, *Nepenthes*, and miscellaneous fine-foliage plants are in their customary vigorous health.

OPHYRS PROVINCIALIS.

HARDY Orchids, with the exception of one or two *Cypripediums* and Orchises, do not receive much attention in gardens, chiefly perhaps because they are rather difficult to grow satisfactorily, but there are several that might well be included in collections of hardy plants. One that was sent to me from France under the name of *Ophrys provincialis* is now flowering beautifully in a sheltered position, its clear yellow flowers being very pretty, and forming a compact spike 3 or 4 inches long. This ought to be more generally known, but I am not quite sure if the name is a correct one, as I have not been able to trace it. In Godron's "Flore de France," a species is described under the name of *Ophrys lutea* from the south of France, which seems to correspond in some points with that I have as *O. provincialis*. Perhaps some of your readers may be able to clear up this matter for me. I see that *O. lutea* is included in some of the trade lists, but I have never seen the plant itself unless mine be that.—H. H. M.

MR. G. F. WILSON'S ORCHIDS.

VISITORS to Heatherbank, Weybridge, or to the meetings of the Royal Horticultural Society, South Kensington, have occasionally seen

some of the Orchids which Mr. G. F. Wilson grows so well. The flower or plants shown have always been remarkable for their vigorous health, and like the hardy plant treasures at Heatherbank they seem to find the atmospheric or other conditions very satisfactory. It is now announced that owing to the large and increasing collections of hardy plants occupying so much of his attention, Mr. Wilson has offered his Orchids for sale at Stevens' Rooms, the date fixed being June 2nd, instead of May 25th as stated last week.

CULTURE OF DENDROBIUMS.

I FIND that *Dendrobies* grow well on cork and suspended from the roof. I will describe how I do it. First find a piece of cork a suitable size, place it into boiling water to kill all woodlice or other vermin, then find two other pieces of thin cork, which are also placed into the hot water. There is a kind of moss that grows on the north side of tiled houses which I find superior to ordinary sphagnum. Place several pieces of this moss on the face of the cork, the *Dendrobe* on this moss, and apply the two thin pieces of cork on each side of the moss, fastening the whole by passing a ligature of copper wire round, and secure the *Dendrobium* with the wire. The moss starts growing when moistened, and retains the moisture well. I never water my plants thus treated above three times a week in the hot weather when the plants are making their growth, and when they are at rest only once a week—i.e., in the winter. Most of the *Dendrobiums* do well under this treatment.

Another plan I find beneficial with the *Dendrobiums* that have small fibry roots, such as *Dendrobium pulchellum* and those with drooping pseudo-bulbs. I simply fasten these on to a piece of old cocoa-nut fibre mat, the piece of matting being fastened to a piece of cork as before, but without the side pieces of cork. Some of the *Oncidiums* do well under this treatment. If any readers will try my plan with some of the *Dendrobiums* they find difficult to grow I think they will be pleased with the results. *Dendrobium heterocarpum*, a plant that some cannot grow for long, succeeds well on the cocoa-nut mat (an old door mat I use). *Vandas*, *Saccolabiums*, *Aerides*, all grow and flower well with my moss-and-cork treatment. Another grand thing in my mode of treatment is that they do not want continual syringing. I immerse the plants in the tank, if not in bloom.—SPERO, *Darenty*.

HORTICULTURAL SHOWS.

THE following are the principal Shows to be held in June of which we have received particulars, and we shall be glad to have schedules of any Societies not included. Mr. E. Mawley has promised us a revised list of Rose Shows, that will shortly be published.

June 9th. South Essex, Leytonstone.

June 14th. Royal Horticultural Society. Committee Meeting.

June 15th. Royal Botanic Society, Regent's Park. Second Summer Show.

June 21st to 24th. Leeds.

June 23rd and 24th. Bury St. Edmunds.

June 28th. Royal Horticultural Society. Committee Meeting.

June 29th. Richmond and Croydon.

June 30th. East Gloucestershire (Roses).

WORSLEY HALL GARDENS.

WHILE at Manchester some time since I visited these famous gardens, and saw much to admire. Worsley is only a few miles from Manchester. The Hall is a large handsome building in the ornamental Gothic style, its terraces and the beautiful design of the flower beds will always be kept in memory as forming one of the finest flower gardens in the country. Near the terrace gardens there is a large ornamental piece of water which is crowded with waterfowl, its banks planted with shrubs forming a pleasing picture. From the above point of view can be seen the famous Chat Moss, which is about 100 feet deep, and used to be at one time a mass of living sphagnum, but Mr. Upjohn tells me it is now almost dead, which he attributes to the smoke and fumes of Manchester. Passing from the Hall we noticed a great number of *Rhododendrons* which thrive in every conceivable position, being one of the few shrubs that will grow at Worsley. The Ash also flourishes, and also does the Oak, as may be judged from the growth of a young Oak which was planted by the Princess Royal during a visit she paid to Worsley. The kitchen garden contains the fruit houses, which are the chief attraction, for here we see the results of Mr. Upjohn's skill and energy in their best forms. Before entering the long range of vineries and Peach house we passed through a useful plant house, where *Crotons* and *Dracenas* were remarkable for luxuriant growth, and were to be used as table plants. A stove near this is used for Pine suckers, and the principal varieties grown are Queens, Charlotte Rothschild, Smooth Cayenne, and Black Jamaica. The suckers were plunged in charcoal refuse, which has also been found useful for striking cuttings in. After admiring the healthy appearance of *Vicomtesse Hericart de Thury* Strawberries we passed to the Fig house, which was filled with large trees of Osborne's Prolific, Negro Largo, Brown Turkey, and Ischia Figs, giving every appearance of bearing a heavy crop. The early vinery is a hip-roofed structure, and although the Vines were very old they had broken very strongly indeed, and were showing some remarkably fine bunches.

The next house is planted with Muscats and Madresfield Court Vines, and although these Vines were young they had ripened remarkably fine wood. The range of fruit houses is over 300 feet in length. In the early Peach house was a remarkably fine crop of fruit. The names

of some of these healthy-looking trees were Hales' Early, Bellegarde, Lord Napier, Stirling Castle, and Red Magdalen. Camellias were growing luxuriously on the back wall, as also was a Heliotrope. In the second Black Hamburg house the Vines were breaking strongly; here also were some fine Orange trees in pots bearing a heavy crop of large fruits, and Azaleas a mass of bloom. There were more Strawberries, and Mr. Upjohn is a most successful grower of this useful fruit, as his record of prizes will show. He prefers to force first Vicomtesse Hericart de Thury and La Grosse Suerée for early use, with Bothwell Bank to follow, finishing with James Veitch and British Queen. The late vinery contained Alicante and Lady Downe's in splendid colour and condition. Although Mr. Upjohn does not exhibit so frequent as he used to, he still maintains his high reputation as a Grape grower, and it may perhaps interest a few of your readers to know that he was second in Liverpool to the now famous Gros Colman from Mr. Goodacre. The Vines in the intermediate vinery were just breaking freely, and there again we found the old favourite Black Hamburg; and there is also a Gros Maroc inarched on a Black Hamburg stock, which I was informed greatly improves its flavour. Lovers of that grand white Grape, the Duke of Buccleuch, will be pleased to know that it is successfully cultivated there. The Muscat house contains Vines forty years old, and they do not look the worse for their age; and there again is the Duke of Buccleuch, as well as some healthy Camellias in pots. The last house of the range is a large structure 80 feet long and 12 feet wide, which is used as a late house for Peaches and Nectarines. The trees are young, in the best health, and were thickly studded with fruit buds. Among some of the varieties grown are Stirling Castle, Royal George, Dr. Hogg, Sea Eagle, Elruge, and Victoria. A large part of this house is occupied by bedding plants, and one of the most notable being Pelargonium Queen of the Whites, and Mr. Upjohn thinks that is one of the most useful white varieties grown. The well-stocked kitchen garden is surrounded by walls covered with healthy trees, and comprises about 10 acres; we come to a new lean-to house in two divisions, which is to be used for Plums and Pears respectively, the length of this house is 200 feet. We pass through the orchard on our way back, a part of which stands on the Chat Moss. We now come to the span-roofed bedding pits; and to give some idea of the magnitude of the bedding at Worsley, we may mention that about 100,000 plants are bedded out annually, of which of these 30,000 are Pelargoniums. There being such an enormous quantity, it may be interesting to know which are the chief favourites. Mr. Upjohn finds the following the most useful:—Vesuvius, Bijon, Cleopatra, Henry Jacoby, Mrs. Pollock, &c. Lobelias are also an important class, for we find that 30,000 of this useful bedding plant are grown, the bulk of which are for Blues—Pumila magnifica and Grandiflora; for Whites—Ingrami and Purity. In Tropæolums, Mr. Upjohn has a variety of his own raising named Worsley Hall, which seems specially adapted to the climate. Golden Treasure is the Fuchsia most used for bedding. In an intermediate plant house are some fine specimens of Adiantum cuneatum with double Primulas. Amongst the Orchids are healthy pieces of Dendrobium Wardianum, D. Lowi, D. nobile, Lælia anceps, and Cypripedium insigne. Another house is principally used for Orchids, among the most notable being Cattleya Mossiae, C. Mendeli, C. Trianae, Vanda tricolor, and Odontoglossum vexillarium, with plants of Kentia Fosteriana and Aralia Veitchii. Houses are devoted to pot Vines, Cucumbers, Melons, and Potatoes, also used for forcing large quantities of French Beans, Williams' Prolific and Osborne's Early being the favourites.

After seeing the old hall where the Duke of Bridgewater planned his great canal schemes, I concluded an interesting visit, which was rendered very pleasant by the courtesy of Mr. Upjohn, who requires a staff of thirty-five men to keep these famous gardens in order, but he possesses an able assistant in his foreman, Mr. Craven.—VISITOR.

PRIMULA OBCONICA.

AMONGST plants of recent introduction this is destined to become one of the most popular, for it can be had in flower the whole year, and individual plants can be had in full beauty for eight months out of twelve. Like the majority of Primulas or other plants raised from seed, it varies greatly in the size of its flowers and their shade of colour. By care and judicious selection of the seed-bearing plants very great improvement may be effected and distinctly coloured flowers produced. Our plants this year have shown a marked improvement in this respect, and the habit of the plant has somewhat varied. Two or three have produced flowers nearly double the size of those we raised from seed when first offered by Messrs. J. Veitch & Sons. Some of the plants are of a more compact habit than others, this being especially noticeable in the height of the flower spikes. The dwarf forms generally have much paler flowers than those of taller habit—in one or two cases the flowers have been nearly white. On the other hand, we have observed in two or three of the plants this year a much deeper shade of rose round the eye than previously. Those that display these distinctive characters are certainly limited in numbers, the majority being of the ordinary type. This may be due to an attempt on our part to cross them with Alpine Auriculas and Primroses, but we do not think so. Last year we attempted to effect the same cross, but as far as we can judge from the young plants, they display no distinctive features.

There can be no doubt that this plant is capable of great improvement.

For greenhouse and conservatory decoration it has certainly surpassed our highest anticipations of it the first season, but we question if it is sufficiently hardy to ever become a popular plant for outside borders and rockeries. Those we planted in a sheltered position in early autumn have succumbed to the severity of the past winter. The same result has taken place with others who have tried it in the northern counties. It would unquestionably have had a better chance to enable it to withstand the winter had the plants been placed out in spring instead of autumn, therefore our opinion of its hardiness should not be taken as conclusive.

Like many other Primulas, *P. obconica* resents division of its crowns in order to raise a stock of plants. It can be grown by this means, but will not give general satisfaction. If the plants are divided before they are allowed to flower, then a certain success will without doubt be ensured, but if they are exhausted by flowering for some months before they are operated upon they will not give satisfaction afterwards. Disappointment arising from this method of treatment the first season led us to select a number of plants for seed bearing, which is decidedly the best method of maintaining a stock of healthy plants for flowering at any period of the year. Healthy plants selected now in full bloom and placed on a shelf in a dry position will without further trouble produce abundance of seed. New seed germinates freely and quickly; old seed is useless, because it will not grow. If seed is sown as soon as it is ripe from the plants selected now, some strong flowering plants will be produced by June next year. From seed sown at the end of July or August, and again the following February, a succession of flowering plants for the whole year will result. Raising plants from seed is not only the quickest, but the easiest method. We have used many plants for rooms during the past winter and found them invaluable for grouping in any light position. For large houses that have to be furnished all through the winter with thousands of flowering plants, it is decidedly the best. Plants brought into flower in October in 6-inch pots are still in full beauty, and have never been removed from the structure in which they were then placed.

The seed should be sown on the surface of fine soil, fully half of which is leaf mould that has passed through a fine sieve. Water the seed gently with a fine-rose can, cover the pan with a square of glass and place it in a temperature of 60° to 65°. If the seed is new germination will soon take place, the older the seed the longer it is before it germinates. Grow the seedlings on a shelf close to the glass until they are large enough to be pricked off singly into other pans. If the seed is sown now the seedlings must be shaded; this is not necessary if sown earlier in the year. After growth has commenced they should be gradually removed to cooler quarters, and finally to cold frames. They enjoy a little heat in their early stages, say until the month of May—that is, those raised early. Those raised in autumn will do well in a winter temperature of 45° to 50°, may have greenhouse treatment from early spring, and can be placed in cold frames after the middle of April. The winter temperature given will suit well those intended to flower from October throughout the winter. To be brief, the soil and treatment that will grow Chinese varieties will suit *P. obconica* exactly. They can be grown together under the same conditions until established in their flowering pots, when *P. obconica* can be placed in a sheltered position on a bed of ashes outside.

Like all the other members of the large *Primula* family of plants, that under notice strongly resents exposure to bright sunshine. Under those conditions it will not thrive, and soon becomes a prey to red spider. When placed outside they should have a northern aspect, and the surrounding atmosphere should be kept moist. With Chinese varieties bright sunshine soon produces a yellow sickly appearance of the foliage, and the same quickly takes place with *P. obconica*.—N. G.

THE FLOWER GARDEN.

THE time of year is at hand for the embellishment of the beds in the flower gardens during the summer and early autumn months. Owing to the lateness of the season many of the spring-flowering plants, such as *Myosotis dissitiflora*, Wallflowers, and Aubrietias, which now occupy the beds, can hardly be said to be in full flower at this date, and *Silene pendula compacta* and *Saxifraga umbrosa* will not be in flower for another week or two. The majority of the spring-flowering plants employed in the flower garden are at their best towards the end of May, when it is time that the summer occupants of the beds, such as the different sections of Pelargoniums, Calceolarias, Ageratums, and Lobelias, were planted. But where employers are at home at that time it is no easy matter to obtain permission to remove from the beds the masses of blue Forget-me-nots of the softest and most pleasing hue, pink *Silene* of the brightest shade, and the yellow and blood-red Wallflowers. However, the gardener who is as loth to break up such a pleasing floral picture is also mindful of the floral effect that that has to be produced

by summer-flowering plants in the same beds by the middle or end of July, hence his anxiety to have the summer bedding plants out as soon after the third week in May as weather and other circumstances will permit. A month later will be soon enough for Tuberous Begonias, Alternantheras, Mesembryanthemum cordifolium variegatum, and Heliotrope.

In the meantime, the work preparatory to bedding out must be proceeded with in a judicious and active manner. The bedding plants require being properly hardened off, taking them from the vineries and Peach houses to cold pits and frames, where, after a few days, the sashes can be drawn off during the day, afterwards shifting the plants into improvised frames in a sunny aspect, covering them at night with mats, to make room for other plants from the houses, and so on, until all the plants intended for the flower garden or borders in kitchen garden are hardened. Where "carpet pattern bedding" is patronised, the beds should be manured, dug, trodden, and made level with the rake preparatory to getting out the designs. These should be simple, proportionate in their several parts, and be neatly executed. A few beds in every flower garden having any pretensions to the name should be devoted to the system popularly known as "carpet bedding." The beds in which Pelargoniums, &c., are to be planted should also be prepared for their reception. Commencing with those containing the earliest spring-flowering plants, by removing those intended for another year to the reserve garden, and planting the surplus plants here and there on each side of favourite walks and drives, in the home woods, and finishing with the beds having the latest flowering varieties in them, digging in a good dressing of short manure.

HOW, AND WHAT TO PLANT IN THE BEDS.—In the Italian flower garden opposite the south front of Longford Castle, except the two dozen beds devoted to carpet bedding, and which are planted exclusively with a variety of dwarf-growing foliage plants, and a few beds filled with Tuberous Begonias, we have masses of colour, the beds on the right hand side of the broad central longitudinal gravel walk being fac-similes of those on the left. They are therefore planted alike in pairs, with one distinct colour, except in the case of the Silver, Bronze, and Tricolor sections of Pelargoniums, between which we plant, as much for spring as for summer and autumn effect, small tufts of Blue Perfection and Golden Queen Violas; the blue between the silvery-leaved plants, and the yellow amongst the Bronze and Tricolors. Some gardening acquaintances of mine use to advocate giving the plants plenty of room in the beds to develop, which means having the beds scantily furnished until a week or two of their being nipped by autumn frost. This advice is very good for plants growing in pots all the year, and also with regard to bedding where the plants at command are inadequate to fill a given number of beds. In the latter case the advice would, however, be unnecessary. My advice is, where the families remain at home all the summer, to set the plants at such a distance from one another in the beds as to get the latter furnished with foliage and flower as early in the season as possible; and in the other case, that of the families being from home during the summer months, the object should be to have the beds, and garden generally, looking their best by the time they return. It is almost needless to say that the plants should be quite moist at the roots when they are being planted, and that the soil be made firm about them. Then, if short dung or leaf mould and labour are plentiful enough to admit of a mulehing of it being laid between the plants on the beds, so much more satisfactory will be the results. During the interval from the time of setting the plants in the beds and the date at which the beds are wanted to be fairly well furnished, or, as the case may be, at their best, keep the flowers picked off, and any of the plants showing a disposition to outgrow their neighbours should have the points of the shoots pinched out, so as to promote a balance of growth in the plants, and thereby give to the beds a uniform appearance.

A FEW SELECT VARIETIES OF BEDDING PLANTS.—We obtain our masses of colour from plants of the following varieties:—Pelargoniums—Henry Jacoby (crimson), Vesuvius (scarlet), Tom Thumb (scarlet), Ivy-leaf (red), Christine (pink), Mrs. William Paul (pale pink), Leamington Lass (bright pink, semi-double), Pink Ivy-leaf, and Indian yellow, a very distinct and telling colour; Ageratum Tom Thumb (mauve), of dwarf habit, as the name implies, and a profuse flowerer; as also is Lobelia pumila magnifica (a deep blue); Calceolaria amplexicaulis (lemon colour), and Purple King Verbena. Masses of the colours indicated judiciously arranged are, when contrasted with carpet beds, &c., both bold and telling in effect, and to which effect a few beds planted with Mignonette and Heliotrope will add fragrance. In conclusion I may say that if the beds in which the tuberous rooted Begonias are planted be covered with silvery Sedum, it will ultimately prevent the foliage and flowers from being splashed by heavy rains, and that in the absence of the latter at the time the plants are being put out, water should be given at the roots, and afterwards be repeated at frequent intervals until the plants are well established.—H. W. WARD.

ANTHRACITE COAL.

IN reply to "Davenport's" inquiry about anthracite coal, I may state that the fire is easily kept in. It does not burn rapidly, nor does it require more attention than ordinary coke; in fact, I consider much less. It lasts longer, gives more heat, and forms less clinker. However, it requires a sharp draught, and I would advise that the firebars are not more than half the length of the boiler, and not less than half an inch apart.

If they are three-quarters of an inch, or even 1 inch, so much the better —EGERTON HARDING.



THE Council of the ROYAL HORTICULTURAL SOCIETY have resolved to call a special meeting of the Fellows, to be held at South Kensington on Tuesday, June 14th, to take into consideration the present position of the Society with a view to future arrangements.

— THE GARDENERS' ORPHANAGE FUND.—A meeting of the Provisional Committee was held at South Kensington on Tuesday last, Mr. G. Deal presiding, at which the sum of £568 11s. was announced in the form of donations and subscriptions, and the following resolution was unanimously adopted:—"That the Provisional Committee is of opinion the progress hitherto made towards the establishment of the fund is sufficiently satisfactory to warrant the calling of a general meeting with a view to establishing the same, and that such meeting be held on July 12th." A Sub-Committee was also appointed to make the necessary preparations for consideration on June 28th, for the general meeting referred to.

— FRAGRANT CHRYSANTHEMUMS.—"Would you kindly give me the names of a few sweet-scented Chrysanthemums for autumn exhibiting, any sections? Scent is the point to be considered irrespective of any other. Progne is the only one I know." Thus writes a correspondent, "C.," and we shall be glad if any of our readers can give the desired information.

— PRESENTATION TO MR. G. KING.—Mr. G. King, who has been gardener to the late R. Few, Esq., Wolsey Grange, Esher, for fifteen years, has left that charge owing to the death of his employer, and last week a number of friends presented him a barometer and silver-plated tea and coffee service with salver as a testimonial of their esteem, and in recognition of the services he had rendered as Secretary of the Esher Gardeners' Mutual Improvement Society, which he assisted in founding six years ago. Mr. King has been appointed gardener to W. Macfarlane, Esq., Glenhurst, Loudwater, Hertfordshire.

— ON Thursday and Friday last SEVERE STORMS of wind, rain, and hail were experienced in the neighbourhood of London and throughout England generally, much damage being done to the young foliage of trees and the fruit blossom, Apples especially. Horse Chestnuts had their leaves greatly cut and torn, the ground beneath them in some instances being thickly strewn with small shoots and foliage.

— A CHRYSANTHEMUM grower is pleased to observe that "the SHEFFIELD AND WEST RIDING CHRYSANTHEMUM SOCIETY has taken a step in the right direction in offering a valuable cup to become at once the property of the first winner, as well as a valuable money prize. The two combined make the first prize for forty-eight blooms, by far the highest prize yet offered under the same conditions; and the Society deserves to reap the reward of such 'new departure and liberality.' The first prize for forty-eight cut blooms in not less than thirty-six varieties is a silver cup, value £15 15s., and £10 in cash; or a total value of £25 15s., to be had at once!"

— A CORRESPONDENT writes, "CATERPILLARS make their appearance about this period on Gooseberry and other hushes. A day or two is well spent in examining and handpicking them, destroying the fully grown caterpillars and removing the leaves on which are secreted numbers of small ones. The leaves containing them can be detected almost instantly, because they are invariably pierced where the young insects have commenced to feed upon them. The leaves containing these are best burned. Attention now will save the foliage of the trees and the crop of fruit from destruction. But in a short time the labour of handpicking will be an endless occupation."

— WE have received a list of the COUNCIL, OFFICERS, and COMMITTEES OF THE ROYAL HORTICULTURAL SOCIETY FOR 1887, comprising the honorary members, foreign members, corresponding members.

Scientific Committee, Fruit Committee, Floral Committee, Orchid Nomenclature Committee, Narcissus Committee, and Primula Conference Committee. A similar list of the Fellows would also be useful.

— **THE GRANGE GARDENS.**—We understand that A. H. Smee, Esq., The Grange Gardens, Hackbridge, Carshalton, has expressed his intention of opening the gardens to the public next week, also on Sunday afternoon, as well as the Sunday following.

— **WE** are desired to state that the **CHRISTLETON ROSE SHOW** will be held on Friday, July the 15th.

— **PRESENTATION TO MR. G. DICKSON.**—We learn that Mr. George Dickson, ex-Mayor of Chester (of the firm of Messrs. J. Dickson and Son) is so far esteemed by the burgesses that he has been presented with a salver weighing 200 ounces.

— **MR. IGGULDEN** observes :—"Mr. Murphy considers pitting **POTATOES** equivalent to leaving them in the ground, but in this he is very wide of the mark. Those left in the ground are bound to be very much cooler than those pitted, which heat considerably when first heaped together, and never after get really cold. Surely he can leave sufficient undug this season to give my method of preventing premature sprouting a fair trial. Probably 'Audax Trepidus' is one of those enthusiastic growers and exhibitors of Potatoes, who, when the National was in full swing, made a point of looking up as many selected tubers after the show was over as could be bought or begged. Such well developed and carefully preserved tubers invariably start stoutly and strongly, and with superior cultivation I can quite understand very fine crops resulting. Did 'Audax Trepidus' ever purchase ordinary seed Potatoes from an hitherto unknown source, and from these obtain finer specimens than from his own saving?"

— **THE** schedule of the **HULL AND EAST RIDING CHRYSANTHEMUM SOCIETY** just to hand, contains the usual liberal list of prizes, and the following special features: An engraving of the five silver challenge cups to be competed for, aggregate value £48. Special prizes, given by the Mayor of Hull, for sweet-scented Chrysanthemums. A new silver challenge cup, value £10 10s., given by the President of the Society, R. Falconer Jameson, Esq., to be competed for by residents of the East Riding and North Lincolnshire only. A new prize, class 12, to be competed for by nurserymen only, for cut blooms in space 16 feet by 18 inches, set up in any form. We understand that the Committee are endeavouring to make arrangements to greatly increase the accommodation in the Artillery Barracks, which have already been engaged, subject to the consent of the Corporation, for the Show in November, so as to avoid a repetition of the great crowding and inconvenience which took place at the last year's Show, when about 10,000 people were admitted. The Show is to be held on Thursday and Friday, November 17th and 18th.

— **FRUIT FROM SOUTH AUSTRALIA.**—Incited by the success of California in supplementing the supply of fruit to the London market a daily paper states that South Australia has been put upon its mettle. Some experiments have recently been made in forwarding fruit, which has been sent *via* San Francisco and New York. A report made to the South Australian Gardeners' Society is, on the face of it, not encouraging. A fruit farmer reported that he sent a shipment of fruit to the Indian and Colonial Exhibition. There were 137 cases in all, of varied and specially selected fruits carefully packed. A statement of account has just been received, twelve months after the goods were shipped. The fruit realised £88 9s. 9d., which was well enough; but against it were agency charges and expenses amounting to £36 8s. 5d., with freight and lighterage £21 2s. 6d., leaving the modest sum of a trifle over £30 for the exporter. On another consignment of fifty cases, sold for £55, the sale expenses, irrespective of freight, were £33. It was agreed by the South Australian gardeners that this would not do; but they did not seem inclined to accept the rebuff as final. There was talk of concerted action by which fruit growers might send their produce direct to London in quantities that would make it worth the while of agencies to undertake their disposal upon more favourable terms.

— **KELSO CABBAGE SHOW AND COMPETITION.**—"C. C." writes: "In July last Messrs. Stuart & Mein offered, with a view to make their No. 1 Cabbage better known, a premium of £5 for the best pair of Cabbages, grown from seed supplied direct from the firm. Fully 800 of the most prominent Cabbage growers intimated their

intention of competing, and out of that quantity a fair number of competitors came forward, representing a wide area; the counties from which the competitors came being Northumberland, Lincoln, Kent, Cornwall, Essex, Dorset, Somerset, Hereford, Norfolk, Sussex, Herts, Surrey, Notts, Cheshire, Aberdeen, Devon, Wilts, Berwick, Roxburgh, and Stirling. Each competitor showed two Cabbages, the competition being held at Kelso on May 6th last. The winner was Mr. D. Inglis, gardener to Earl Grey, Howick, Lesbury, Northumberland, whose exhibits weighed 8½ lbs., followed by Mr. N. H. Bigglestone, Hayle, Cornwall, whose Cabbages weighed 6 lbs., and Mr. R. Gilbert, gardener to the Marquis of Exeter, Burghley, Stamford, was third with Cabbages weighing 4 lbs., so that Mr. Inglis, who is well known as a skilful grower, had an easy victory. Having had the pleasure of seeing the winning Cabbages, and testing them upon the scales, I can say they were of a very high class nature, and when considering the county (not the most favourable) and the season, they bestow great credit upon the grower."

— **WELL-GROWN HERBACEOUS CALCEOLARIAS.**—Mr. W. Iggulden writes :—"During the last six weeks there has been a beautiful display of herbaceous Calceolarias in the plant houses and conservatory at Hapsford House, Frome, the residence of A. G. Hayman, Esq. Some of the plants were about 2 feet through, and all were in a healthy clean state, yielding a profusion of fine handsome flowers. The strain is known as Sutton's Perfection, and a more diversified or better selection could not well be made. Mr. S. Andrews, the painstaking gardener at Hapsford, informed me the seed was sown in a pan and placed in a cold frame in June, and during the exceptionally hot spell of weather experienced in July and August the seedlings were kept in a cold frame slightly shaded by trees and facing northwards. They were gradually shifted into 8-inch and 9-inch pots, and were wintered on the high back shelves of a greenhouse facing westwards. As a rule, Calceolarias were a failure in many gardens, the plants assuming a sickly yellow hue, from which they could not be recovered. The cool and careful treatment given to them at Hapsford appears to have prevented this, as only a very few had other than dark green foliage. When well established in their flowering pots they received an occasional weak supply of sulphate of ammonia, and also liquid manure obtained from the piggeries. The latter freely diluted would appear to just suit Calceolarias, Cinerarias, and such like, and ought to be more often utilised than at present is the case. Fire heat at any time, beyond what is necessary to exclude damp and frosts, is a great enemy to Calceolarias, and this is well understood by Mr. Andrews." We have received a box of the flowers referred to, and though they were withered afforded evidence of the excellence of the strain and the culture.

CHRYSANTHEMUMS AND THEIR CULTURE.

At the outset I had better explain why I named Mr. Garnett's flowers in this controversy, as he evidently objects to my having done so. I do not consider any person qualified to criticise other people's doings without he is able to produce something as good or even better than those criticised, and which have stood the test that has been required of them up to now, that is my reason for naming Mr. Garnett's blooms. Again, I must say that Mr. Garnett does not strengthen himself when he says I do not house twenty-five per cent. out of the 1000 plants we grow for large blooms. I repudiate such assertions, and to refute them have only to state that every plant was housed last October, but one plant, Madame Laing, might not have been taken inside for its value for flowers but for stock; this can be proved by those who saw them. Mr. Garnett may still be more surprised to learn that we did not grow 700 plants for large blooms last season. Thus your correspondent has been misled on both sides.

With regard to the Yorkshire grower's successes quoted during several years, I do not think we have met in competition; but if he had met and defeated some of the best men in England at the leading shows I should have attached more weight to Mr. Garnett's arguments, but in spite of all that has been said and done the fact still remains that "non-toppers" have held a decided advantage over the "toppers" in the production of the finest blooms, taking all sections into consideration. I have often heard of the exhibitor in question being an excellent cultivator of the Chrysanthemum, therefore I do not wish to detract from his success one iota, as it neither affects my own nor proves my practice wrong.

As regards the references to Mr. Midgley, I cannot do better than give a citation or two from a letter I have received from that grower. Anent topped and untopped plants he writes :—"I won all first honours at Leeds, the flowers being all from 'untopped' plants with one exception, and that was Boale d'Or, and I think I had better at Leeds than I had at Huddersfield." This speaks for itself without any comment of mine. Further, Mr. Midgley says, "You did not misconstrue what Mr.

Garnett wrote, for Mr. Shaw, who was with me at Swanmore, says he distinctly remembers me saying I grew my plants under the same method as yours." This I consider proves that Mr. Garnett spoke hurriedly when quoting without authority from Mr. Midgley.—E. MOLYNEUX.

[The object of public discussion is to elicit useful information, and as sufficient space has been afforded for the disputants to prove each other wrong "on paper," we think they had better each try the two methods fully and fairly during the present season, and we shall then be glad to hear from them again. As the "defendant" in the case, Mr. Molyneux has the admitted right to the last reply before the application of the closure, and we have reason to believe its application now is in accordance with the wishes of the majority of Chrysanthemum growers.]

INDIAN EXPERIENCES.

(Continued from page 373.)

AFTER the yield of the maiden crops of Coffee manuring was undertaken to the greatest available extent, but only in a few instances did I ever see this important branch of cultivation carried out systematically, or with any marked degree of success. A great variety of artificial manures were imported from England and other countries, and applied at considerable cost with, in the majority of cases, no profitable results whatever. Those manufactured in the country, and consisting of a compound of fish, refuse oil seeds, crushed bones, and other ingredients alike proving of limited utility, resulting from various causes, perhaps not the least formidable of which being the voracious propensities of the white ant, that with unerring instinct quickly discovered the presence in the soil of any of the above-named foreign matters, and crowded in myriads to the feast, and as these substances were of necessity applied during the dry weather the insects had every facility afforded them of consuming the greater portion of the intended Coffee-food before the rains set in or root action began. Cattle manure, produced at considerable cost, shared the same fate, the white ant being particularly partial to it as an article of food. Many planters, being fully alive to this serious hindrance to the object in view, ceased to expend money on manures altogether, and in consequence were not unfrequently blamed for bad and unthrifty cultivation by persons ignorant of the above facts. At higher elevations than 3000 feet, where the white ant was less numerous and not so destructive, manuring was generally undertaken with better results, but surface-soiling or top-dressing with a thick coating of fresh soil from the neighbouring jungle, was perhaps the best and most lasting stimulant I ever saw applied to the Coffee tree in Southern India on lands with an elevation of from 2000 to 3000 feet, surface soil, of course, having always the best effect; but even subsoil of any kind, when applied in thick coatings, proving of great advantage. This plan of assisting the Coffee tree was primarily discovered by accident by some planter having occasion to cut new roads through an old and partially abandoned estate. This work was performed during the dry weather, and the roads cut winding along the steep hillsides, the excavated soil being simply thrown downhill amongst the trees to get rid of it, the trees to all appearance being worn out and of little value. This soil reached perhaps to a distance of three or four lines of trees, and when the rains came they at once began to feel the beneficial effects of the dressing of soil, and produced an abundance of healthy and vigorous shoots, and during the succeeding dry season belts of deep green and healthy trees were seen on the lower sides of all the new roads, whilst all the other portions of the estate looked yellow and unhealthy. The hint was soon taken, and surface-soiling became part of the yearly routine of work on most estates with the happiest results, in some instances planters going so far as to drive roads in all directions through aged estates that had almost given up bearing as the cheapest way of obtaining the soil, and always with good results. All this pointed directly to the evil effects of denudation on steep lands during the heavy rains of the south-west monsoon, and this act of top-dressing was simply one of striving to supply the place of the soil that had been washed from the whole surface of the land by the yearly recurrence of the monsoon gales.

Large sums of money were frequently spent in the purchase and keep of cattle, which proved in most instances to be anything but a paying speculation, whole herds perishing by disease during the hot season, which the planter had little or no means of battling with. Natural fodder, too, in the dry season was scarce, which induced many to undertake the cultivation of several kinds of imported Grasses, and I have seen large areas of the Coix lachryma or Job's Tears, which is indigenous to the Wynaad, cultivated for the sake of fodder, and during 1876 and 1877 large importations of the Prickly Comfrey, *Symphytum asperum*, were made from a London firm of nurserymen. The roots were simply packed in deal boxes in dry earth, and generally arrived in excellent condition, starting into growth immediately on planting and thriving extremely well afterwards; but as the land under the Prickly Comfrey had to be kept as clear of weeds as that under Coffee its cultivation was a matter of considerable expense and doubtful utility.

When the plantations were beyond the hand-weeding stage, which was usually about the fifth or sixth year, the mamoty or large hoe was used in chopping over the weeds and burying them between the rows of trees. This work, when performed before the end of the rains, was always found to be of great benefit to the Coffee, not only in freeing it from the ill effects of growing weeds, but also in a manurial point of view.

Exposure, too, had a great deal to do with success in Coffee planting. At one time it was believed that to plant Coffee on land with anything but a southern aspect was simply to ignore first principles of general cultivation; but subsequent experience convinced everyone that this was altogether an erroneous opinion, at least so far as cultivation in Southern India was concerned. Beyond all question, Coffee grown on land with a northern exposure retained its vigour longer and had a longer existence than that grown on land with a southern exposure.

Pruning was always a vexed question on which planters differed widely, some adopting what is called severe summer handling in India, and disbudding in England, and light knife pruning after the tree has yielded its crop, whilst others handled or disbudded but lightly and pruned heavily with the knife, and in some instances at high elevations. I have known planters who discarded pruning altogether, contenting themselves by removing the suckers that yearly appeared at the junction of the branches with the stem in clusters. The general mode, however, of pruning was to top the tree at from 3 to 3½ feet from the ground, according to the nature of the soil and aspect. Then during the rains to remove all suckers as they appeared, and to handle or thin out the young wood, so as to admit light and air to the tree and fruit, and when crop gathering was completed to cut off all wood with the knife that had borne fruit, leaving a good supply of young shoots for the succeeding year's crop. All this was performed by Mysore coolies carefully trained to the work, and it was quite wonderful how expeditiously and neatly they performed their task. A gang of from twenty to thirty was usually employed at this work, and a man could knife prune from forty to fifty fully grown trees per day. On the Ghaut estates the trees suffered greatly during the monsoon from leaf rot, caused by excessive and long-continued moisture, and absence of sunlight. This had to be guarded against by disbudding at the right time, for any accident delaying or preventing this was certain to result in the destruction of nearly all the leaves and a large proportion of green Coffee berries also. This long-continued cloudy and wet weather had not unfrequently a similar effect on weeds and plants indigenous to the country.—PLANTER.

(To be continued.)

THE AURICULA.

I AM pleased to note up and down the country signs of a revival of interest being taken in that exquisite gem, the Auricula. I myself commenced its culture a year and a half ago and am gradually getting together a decent collection. I believe there are many others like myself who would be glad if some veteran grower would give in your columns a descriptive list of the principal varieties now grown, so that beginners might be able to verify their purchases as they come into bloom. You cannot yet, as in the case of the Rose, run across the road and compare a doubtful Auricula with a corresponding variety in your neighbour's collection, so that some such list as I have mentioned would prove of great service to novices like myself. For instance, I have obtained plants from several different sources, and possibly may have received one or two wrongly labelled. Smith's *Ne Plus Ultra* with me bears a slight resemblance to Simonite's *Frank Simonite*, except that it is not nearly so good in any point, whereas the Rev. F. D. Horner, in his paper read at the Primula Conference last year, mentions it casually in a manner which makes me think I cannot have it true. I do not see why this beautiful flower should not have a modern treatise all to itself, just as well as the Chrysanthemum, Carnation, Rose, &c. Perhaps the Rev. F. D. Horner will kindly revolve the matter in his mind. I understand that Mr. Molyneux's book on the Chrysanthemum has reached its third edition already, and Mr. Dodwell's on the Carnation and Picotee its second edition, while I do not know how many editions Canon Hole's delightful book on Roses has gone through; so I think the time has arrived when a good standard work on the Auricula might be issued without risk on the part of the author, and would be gratefully received by the rising generation of growers.

Will someone kindly say whether there is any real cure for the woolly aphis, and whether it is still an open question as to its being injurious or not? The late Mr. Robert Lord, a short time before his death, suggested to me that I should at potting time wash the roots in a strong solution of Fir tree oil. I should, however, be glad to hear of someone who has tried this remedy whether it has proved efficacious without injuring the plants.

I have always heard George Lightbody described as the most perfect Auricula. To my mind it is very deficient in ground colour, and I think this defect somewhat counterbalances its other splendid properties. If it could be produced with the ground colour of Lancashire Hero I fancy it would better deserve its reputation. My premier this year is Richard Headley; last year Acme was my best flower.—M.

NEPHROLEPIS RUFESCENS TRIPINNATIFIDA.

CERTAIN species of Ferns have a greater tendency than others to produce crested, crisped, plumose, or even depauperated forms, and among these may be placed the genus *Nephrolepis*, which contains already a crested form of *N. davallioides* called *furcans*, a depauperated form of *N. tuberosa* called *neglecta*, a lacinate form of *N. pluma*, which is grown under the name of *N. Bausei*, and last of all *N. Duffi*, which, besides being very handsome, is also curious and interesting, as the same plant possesses, shown in each individual frond, the two distinct characters of depauperation and crestation. The genus *Nephrolepis* is

already represented by some comparatively small-growing kinds, such as *N. pectinata*, *phillippinense*, *Duffi*, &c., all eminently suitable for small rockeries or for growing in brackets against a wall; whereas of quite another appearance are the strong-growing kinds, which are best adapted for the decoration of the warm conservatory, and especially for the filling up of hanging baskets, in which position they form very conspicuous and attractive objects, as it is there that they show themselves to the greatest advantage.

Among the Ferns belonging to this latter section the subject of our illustration, *Nephrolepis rufescens tripinnatifida*, which is the first plumose form recorded in the genus, holds a prominent place, as it is both massive and elegant; its handsome fronds, which have a particularly plumose appearance, attain the length of 4 feet, and measure, about their middle, quite 9 inches across. The relation of this new Fern to the species from which it has issued is similar to that of *Lomaria discolor bipinnatifida* towards *L. discolor*; or it may be said to bear the same comparison as that which exists between two more popular and

country already reached the length of 4 feet, which is given as their full dimensions, none has as yet shown any inclination to produce spores. But like most, if not indeed all, *Nephrolepis*, this new variety is very freely propagated by the young plants produced on its stolons or aerial rhizomes, which are produced plentifully, and which, when they are pegged to the ground, emit them in great abundance. Its culture, like that of all other *Nephrolepis*, is very simple, and consists in allowing it an abundant supply of water at the roots at all times of the year, but especially during its growing season, which may be said to last from the beginning of April to the end of October; after which time the plant is comparatively at rest. Its roots delight to run into a light compost of a peculiarly open nature, the best for the purpose being a mixture of one part of chopped sphagnum, one part of fibrous peat roughly broken, and a third part made up of silver sand, charcoal, or crocks, and a little loam. Being a native of the Fiji Islands, from whence it was imported by Messrs. J. Veitch & Sons, to whom we are indebted for this illustration, it requires stove temperature to develop its beautiful fronds to their



Fig. 73.—*NEPHROLEPIS RUFESCENS TRIPINNATIFIDA*.

better known Ferns, the *Polypodium vulgare* and its Welsh variety, *P. cambricum*. As is the case with these and other plumose forms, the fronds of the new *Nephrolepis* have their peculiarly leafy and full appearance produced through the overlapping of the pinnules or secondary divisions, which are deeply cut and divided into segments in endless variety as regards shape and size, as also through their toothing, which is quite peculiar. Another source of attraction is also found in the colour of the fronds, which in their young state are of a peculiarly fresh light tint, turning with age to a very deep green, which contrasts singularly but pleasingly with the reddish brown colour of the ferruginous woolly matter or tomentum with which their stems and midribs are densely covered. On account of its plumose appearance, as also in reason of the many various ways in which it can be employed with advantage, *Nephrolepis rufescens tripinnatifida* is likely to become a good companion plant for that other grand variety called *N. davallioides* fureans, which, although it has been in commerce for many years, is always in demand; indeed, where the latter is so appreciated the new form is sure to become equally a favourite.

Like all other plumose forms of various species, the new comer has until now proved entirely barren; and although its fronds have in this

full extent, although the heat of the intermediate house, or 55° in the winter, is sufficient to keep it in good health.

REVIEW OF BOOK.

Handy-book of the Flower Garden. Fourth Edition. By D. THOMSON. London and Edinburgh: W. Blackwood & Sons.

MR. THOMSON'S book has taken its place as a standard work on the subject of which it treats so exhaustively and well, and the fact that a fourth edition has been called for indicates the popular demand for reliable information. The work is issued in a cheaper form than hitherto, some alterations having been made in the text; but it still comprises 287 pages of closely printed matter, bearing on all subjects connected with the flower garden. The formation of the garden, the different styles, the numerous plants suitable for various positions, with their culture and propagation, are treated fully and clearly, a number of plans and some illustrations adding considerably to the value of the book. As an example of the style adopted we extract the following introduction to the chapter on "Spring Flowers."

"To some extent, the present style of summer and autumn flower gardening has been built up and carried out on the ruins of spring flowers. The great numbers of half-hardy and tender plants suitable for summer display that have to be propagated and cultivated, have led in most instances to the neglect to a great extent of those hardy plants that are adapted to beautify the parterres in spring. It would, however, be difficult to say that any absolute reason exists why this should be so. The care which the one set of plants necessitates, does not necessarily become a reason why the other set should be neglected. There can be no doubt that the fact of the most opulent and fashionable families being, in the majority of cases, away from their country seats in the spring and early summer, has been the chief cause of directing the efforts and attention of gardeners to the crowding of as many flowers into the autumnal months as possible. Hence the eagerness with which every plant that blooms profusely, or is remarkable for its foliage during that time of the year, has been craved for and cultivated in great numbers. And hence, also, one great reason why spring gardening has been neglected. This example, set by the leaders of society, has exercised a wonderful influence on the owners of small gardens; and they, too, have paid less attention to spring flowers than they ought to have done.

"Of course there is nothing that could justify the gardener, except an express command, in devoting his resources and energies to the decoration of the flower garden during the time that his employers are absent. His interest lies in bending all the ingenuity of his mind to the making of the garden most gay and interesting, either in spring, or in summer or autumn, or both, as his employer may wish and allows means for. Depend upon it, the interest of gardeners lies here. This does not apply to a large class, for whom especially this work is intended—such as business men and amateurs, who derive so much relaxation to both body and mind from their gardens all the year round, and who, if they leave their villas for a season, do so in autumn.

"A reaction in favour of spring flowers and hardy herbaceous plants in selection has taken place, and nurserymen find it to their interest to get up lists of these, and are finding a brisk trade for them. Where the families are resident in spring, the beds and borders are now, in increasing instances, not left empty all the winter and spring. The result has been nothing less effective than Flora's ample spring stores of beautiful objects would warrant anyone acquainted with them to expect. It is not necessary to grow a vast number of species and varieties to produce a beautiful, if a less imposing, effect in spring as well as in summer. But in respect to variety, and taking annuals and bulbs into consideration as well as hardy perennials, spring unfolds perhaps more beauty and variety of form than does the glow of autumn in plants suitable for beds and borders. And it need scarcely be said that plants, to be available for flowering in March, April, and May, must of necessity be perfectly hardy, and, for this reason, within the reach of the humblest amateur who commands a few square yards of a flower border, even if he has not so much as a common garden handglass. Such can make their garden gay more easily, and at less expense, than it is possible to do in summer, and autumn with half-hardy plants. Moreover, spring flowers are nearly all so exceedingly easy to cultivate well, that they are in this respect also within the reach of the great majority, much more so than the class of plants so largely cultivated for the parterre in summer. On this account alone it is exceedingly desirable that the cultivation of, and taste for, spring-flowering plants should be encouraged. They are peculiarly the flowers for the million. We can hardly agree with those who have affirmed that flowers are in many cases the mere toys of the rich, but can conceive how they may become something like friends and comforters of the lowly, and produce in the mind, many times, the feeling which fortified the spirit and strengthened the nerves and hopes of the lonely desert wanderer, when he let his eye rest on the desert moss. The authoress of the 'Life of Hedley Vicars' showed how well she understood the influence of the love of flowers upon the human heart, when she placed a posy on the plate of each navy when he sat down to her tea-meetings at Beckenham. These 'floral apostles' come to us in spring especially, ministering almost human sympathy; and it is sincerely to be desired that their cultivation should be extended and encouraged among all classes.

"If means are in any case circumscribed—and, in such circumstances, the filling of a whole parterre of considerable extent with spring-flowering plants cannot comfortably be accomplished in this order and variety which an ambitious mind desires at once—a compromise should be made. By this I mean to convey that from the variety afforded by annuals in conjunction with such other plants as are easily procured and very rapidly increased, such as Daisies and Violas, and with the aid of cheap bulbs, such as Crocuses and Tulips, a very gay spring parterre may be attained in a very short time; and by degrees other plants more difficult to procure and tedious to increase can be added. In fact, the same choice afforded in autumnal flower-gardening is equally to be commanded in spring.

"As will at once become apparent to the inexperienced by the lists that are furnished, there is no lack of spring-flowering plants available for all classes. There is a rich and most beautiful fund in common bulbous plants alone. Such things as Hyacinths, Tulips, Crocuses, Narcissus, Scillas, &c., need only be named to make this evident. From the cultivation of the hardy Scillas we can testify from experience that much interest arises. Hardy annuals and biennials can be raised easily and rapidly; and these alone, in combination with a few varieties of Violas, wonderfully improved of late years for grouping purposes, to say nothing of perennials, afford a considerable amount of variety, and suffi-

cient in colours for most effective combinations. The odour and lively tints of some of these plants are peculiar to themselves. And though we may not be able to point to the dense massiveness of the scarlet Pelargonium, the Verbena, and the Calceolaria, as available for autumn, spring can boast of more delicious odours, and far more delicacy and variety of tints. True, spring cannot produce the lovely foliage of the Mrs. Pollock class of Pelargoniums; but there is the golden Arabis, which always puts on its best dress towards winter. Spring is certainly deficient in, though not destitute of, dark-foliaged plants; for there is the dark-leaved Ajuga, and in silver variegation there are the variegated Arabia and Euonymus radicans variegatus, as well as the variegated Ivies and Periwinkles, and various deep golden and silver shrubs, the beauty of which is most conspicuous in winter and spring, while trees are leafless. Time will not fail to make good these seeming deficiencies; and in the meantime it cannot be said of spring, that from lack of variety it does not encourage the lovers of flowers to drape their gardens with the loveliest hues, and perfume the air with the most refreshing odours in spring as well as in autumn. But instead of balancing the adaptability of the two classes of plants for producing beautiful combinations, the various capabilities of spring-flowering plants will be adverted to individually, as they are treated of in detail. I will only further say, for the encouragement of all owners of gardens who reside at their places in spring, that, for sweetness and chasteness of effect, many of the spring combinations far surpass those of autumn, and that many of the spring colours are as brilliant—and some much more so—as any that autumn can produce. What can surpass the purples of the Pansies, the yellows of the Alyssum and Cheiranthus, the Tulip, and the Crocus? And in deep bright blues, the Scillas, the Gentians, and Forget-me-not stand unrivalled. Then there are the white Violas, Daisies, Forget-me-not, &c., that are scarcely rivalled for whites by the popular favourites of the autumn parterre. The Anemone affords scarlet of the most vivid kind, although, as beds for general effect, not equal to the scarlet Pelargoniums. I will now proceed to treat of the various plants in detail, and, to be comprehensive, will deal with annuals as a whole; for their management is so nearly alike that to treat of them individually is not necessary. All the herbaceous and bulbous plants treated of in this department are of course equally well adapted for the mixed herbaceous border."

CRYSTAL PALACE SHOW.

MAY 21ST.

THE Exhibition at the Crystal Palace, Sydenham, on Saturday last was one of the largest held there for some time, but much of the effect that would have been otherwise produced was lost by the exhibits being widely scattered throughout the whole of the transept and the two naves. Exhibitors found the staging and removal of their contributions a difficult matter, and complaints were numerous in consequence. It is well to avoid the too frequent formality of arrangement at exhibitions, but it is possible to go to the other extreme, and when the plants entered in one class are so widely removed it renders the Judges' task much more arduous and often unsatisfactory.

Many of the plants shown were the same as those which were awarded honours at the Regent's Park Show last week, and it will not therefore be necessary to particularise them, but some excellent features were introduced that merit special notice. The groups were remarkably good, the prizes of £10, £6, and £4 bringing several strong competitors in both classes. In the open class for a group of plants arranged for effect, occupying a space not exceeding 200 square feet, Messrs. J. Laing & Co., Forest Hill, won the premier prize with an extremely handsome, bright, and tastefully arranged contribution. In this were new brilliantly coloured Tuberous Begonias, Azaleas, choice Orchids, Ericas, Palms, Ferns, and miscellaneous plants were freely employed with admirable effect. Messrs. Hooper & Co., Covent Garden, were second with a varied and pleasing group arranged in their usual light and tasteful manner, Mr. H. James, Norwood, taking the third place. The amateurs' class was for a group of Orchids in bloom, not less than forty plants, arranged with Palms and Ferns, and the five competitors who entered all had tasteful collections. Mr. Simpkins, gardener to R. J. Measures, Esq., Camberwell, was the successful exhibitor, winning the first prize for a charming selection of Orchids, comprising very fine *Cyclopogon*, choice *Cypripediums*, *Cattleyas*, *Odontoglossums*, *Masdevallias*, *Oncidium*, *Aerides*, and *Lælias*. Mr. C. J. Salter, gardener to J. Southgate, Esq., Selborne, Leigham Court Road, Streatham, was a good second with a varied group, one plant of *Cymbidium Lowianum* bearing four long spikes being very handsome; Mr. S. Cooke, gardener to De B. Crawshaw, Esq., Rosefield, Sevenoaks, was third with a collection chiefly of *Odontoglossum crispum* and *Lælia purpurata* varieties, with Palms, a pretty effect being produced, but there were not quite sufficient plants.

The exhibits in the classes devoted to Orchids were numerous and comprised some excellent plants. With nine specimens Mr. A. J. Catt, gardener to W. Cobb, Esq., Silverdale Lodge, Sydenham, took the lead, showing an extremely fine *Odontoglossum vexillarium*, bearing a great number of flowers; *Cattleya Skinneri*, with twelve spikes; *Odontoglossum crispum*, ten spikes; *Oncidium Marshallianum*, *Masdevallia Harryana Dawsoni*, *Cologyne Massangeana*, *Cattleya Mendeli*, and others. Mr. F. J. Hill, gardener to H. Little, Esq., The Barons, Twickenham, was second, also with good plants, especially *Cattleya Skinneri*, *Oncidium Marshallianum*, and *Dendrobium thyrsiflorum*, Mr. H. James following with *Cypripediums*, *Lycastes*, *Cattleyas*, &c. Mr. Catt was again first with six Orchids, followed by Messrs. Hill and Luff. The best single specimen came from Mr. H. James, a large *Lælia purpurata* with nine spikes. Mr. Hill was second with a beautiful *Cattleya Skinneri* in a basket, and Mr. Catt third for *Odontoglossum crispum* with six spikes.

The stove and greenhouse plants were mostly the same as those at the Regent's Park Show a few days before, Mr. W. Chapman, gardener

to J. Spode, Esq., Hawkeyard, Rugeley, being first both with nine and six plants with his usual fresh evenly trained and well flowered specimens. Messrs. H. James, Offer, and Bolton secured the other prizes in the two classes. The best single specimen stove plant was a large *Clerodendron Balfourianum* from Mr. Wakeham, and the best greenhouse plant, a huge *Erica Cavendishiana*, from Mr. H. James, who was also first with nine *Ericas*, capital healthy specimens. In the class for eighteen Roses in pots not exceeding 9 inches in diameter, Messrs. Paul & Son, Cheshunt, were accorded first honours for a good selection of varieties and vigorous well flowered plants, of which *Beauty of Waltham*, *Violetto Bonyer*, *Souvenir d'un Ami*, and *Madame Isaac Perrière* were very notable. Mr. C. Turner, Slough, was a close second, and Mr. Rumsey, Waltham Cross, was third, with healthy little specimens. Nearly all the *Pelargoniums* were the same as those noted last week at Regent's Park, but of course not quite so fresh. Mr. C. Turner, Mr. D. Philips, Slough, Mr. F. J. Hill, and Mr. Wiggins, gardener to W. Clay, Esq., Kingston, were the prizetakers. *Azaleas* were not quite so good as usual, being rather deficient in flowers, the best being the eighteen small plants from Mr. C. Turner, which were first in their class, neat globular or conical specimens of *Cordon Bleu*, Mrs. Turner, Bernhard *Andrea alba*, Mdlle. Marie Lefebvre, *Roi d'Hollande*, *Souvenir de Prince Albert*, *Baron de Rothschild*, and *Louise Pynaert*. Mr. Turner was also first with nine *Azaleas*, but not very well flowered, Mr. H. James being second with brighter specimens. Mr. H. Offer, Handcross Park Gardens, Crawley, was first with six *Azaleas*, good examples of *Flag of Truce*, *Leopold I.*, and Mrs. Turner being notable. *Gloxinias* and *Calceolarias* were well represented, Mr. A. Luff, gardener to R. R. Hyatt, Esq., Streatham, and Mr. W. Slogrove, gardener to Mrs. Crawford, Reigate, winning the first prizes in the two classes for *Gloxinias*. With *Calceolarias* Mr. J. James, Farnham Royal, Slough, was first for superb, compact plants, with highly coloured flowers, and in the amateurs' class Mr. C. J. Salter was easily first with excellent plants of a capital strain.

Fine-foilage plants, Ferns, *Dracenas*, and *Crotons* were numerous and mostly clean well-grown specimens, but there was a general want of colour in the *Dracenas* and *Crotons*, due no doubt to the unfavourable season. Mr. T. N. Penfold, The Gardens, Beddington House, Beddington, exhibited well and secured first honours for nine fine-foilage plants and nine Ferns, and in both cases his specimens were good examples of cultural skill. Mr. Bolton also showed well, taking the first place for six Ferns and several smaller prizes in other classes. Mr. Bird, gardener to J. A. Canston, Esq., Allyn Park, West Dulwich, and Mr. Offer were respectively first with nine and six *Crotons*, the last named being excellently coloured. Messrs. H. James and Hooper & Co. also won several prizes in these classes. For *Dracenas* Mr. W. King, gardener to Philip Crowley, Esq., Waddon House, Croydon, was a successful exhibitor, securing the premier award with six fine specimens. Messrs. J. Laing & Co. were first with nine *Caladiums*, the plants 3 to 4 feet high and in diameter, and with well developed foliage, the varieties being *Comte de Condeixa*, *Ludemannianum*, *Leopold Robert*, *Sanchoniaton*, *Fritz Kachlin*, *Albo-luteum*, *Ferdinand-Lesepes*, *Clio*, and *Mithridate*. Mr. H. James had the best eighteen *Nepenthes*, very strong large plants, bearing numbers of fine pitchers, and Mr. A. Luff was second in the same class.

The prizes for eighteen dinner table plants brought no less than ten exhibitors, and the display was an usual one. Messrs. Hooper & Co. were adjudged first honours for neat graceful plants, of which the following were the best:—*Pandanus Veitchii*, *Croton Lord Derby*, *Aralia elegantissima*, *Kentia Belmoreana*, *Croton elegantissimus*, *Dracena Goldieana*, *Phoenix rupicola*, *Cocos Weddelliana*, *Croton Evansianus*, *Aralia Veitchii*, *Terminalia elegans*, *Geonoma gracilis*, and *Dracena terminalis*. Mr. J. Hudson, gardener to H. J. Atkinson, Esq., Gunnersbury House, Acton, and Messrs. J. Laing & Co. were awarded equal second prizes for similarly elegant plants.

Bouquets, buttonholes, and stands of flowers were admirably represented, the competition in several cases being very keen and the exhibits most tasteful. Messrs. Perkins & Son, Coventry, won the prize for the best bridal bouquet, which was chiefly composed of white *Lapagerias*, white *Roses*, *Lilies of the Valley*, *Stephanotis*, *Pancratiums*, *Rhynchospermum*, *Dendrobium Jamesianum*, with *Asparagus plumosus* and *Adiantum*. Mr. J. R. Chard, Stoke Newington, was second with a tasteful combination of *Bouvardias*, *Eucharis*, *Tuberoses*, *Gardenias*, double *Primroses*, and *Lilies of the Valley*; Mr. G. Phippen, Reading, being third with a bouquet consisting chiefly of *Stephanotis* and white *Roses*. For one bouquet Messrs. Perkins & Son were again first, the flowers employed most freely being *Masdevallias*, *Roses*, *Odontoglossums*, *Lilies of the Valley*, *Stephanotis*, and *Rhynchospermum*, placed together lightly and gracefully. Mr. J. R. Chard was again second with a very pretty bouquet, consisting of pink *Bouvardias*, *Carnations*, white *Roses*, *Eucharis*, yellow *Carnations*, and double *Primulas*, with *Adiantum* fronds. For six buttonhole bouquets Messrs. Perkins & Son were first, their contributions being largely composed of *Orchid* flowers. Mrs. Bishop, Duppas Hill, Croydon, was second with a tasteful arrangement of *Stephanotis*, *Roses*, *Bouvardias*, and *Forget-me-nots*; Miss C. A. Wright, 2, Railway Buildings, South Norwood, being third with somewhat similar elegant bouquets. The prizes for three vases of flowers were well contested, Mr. T. Butcher, South Norwood, gaining the first place, followed by Mr. J. R. Chard and Mrs. Bishop; while for one vase Mr. G. Phippen took first honours, Mr. J. R. Chard being second, and Mr. Hassell third. Messrs. Perkins & Son also had a handsome wreath of white flowers, not for competition. Cut flowers were numerous, the leading collections being staged by Mr. A. Gibson, gardener to T. F. B. Atkins, Esq., Halstead Place, and Mr. C. J. Salter; Messrs. Penfold, James, and Parrott securing the other prizes.

The miscellaneous non-competing exhibits were very numerous and excellent. Messrs. Wm. Paul & Son, Waltham Cross, had an extensive collection of *Roses* in pots together with a dozen boxes of cut blooms, all as bright and fresh as could be wished. Messrs. Paul & Son, Cheshunt, had a varied group of choice hardy herbaceous and alpine plants. Mr. T. S. Ware, Tottenham, contributed a group of *Pæonies*, *Primula Sieboldi*, *Trollius*, and *Polemonium Richardsoni*. Messrs. Barr & Son, Covent Garden, had a large and beautiful group of *Daffodils* and hardy flowers. Messrs. J. Carter and Co., Holborn, showed a collection of *Mimulus* named *Carter's Queen's*

Prize, the flowers $2\frac{1}{2}$ inches in diameter, scarlet and magenta, with yellow and cream coloured throats and margins. Mr. J. Bolton, Coombe Bank Gardens, Sovonoaks, sent two plants of a bright double pink *Petunia*. Mr. W. Rumsey had several boxes of *Rose* blooms; Mr. Hooper, Bath, a large collection of *Pansy* blooms; Mr. Walker, Thame, boxes of fine *Maréchal Niel* and other *Rose* blooms; and Mr. A. J. Catt a group of plants of *Odontoglossum crispum*.

Certificates were awarded for the following plants:—

Pæonia Moutan Uranie (T. S. Ware).—Very large handsome flowers, full, rosy crimson.

Pæonia Moutan Rinzi (T. S. Ware).—Similarly large, of a rosy purple colour.

Pæonia Moutan Louise Mouchelet (T. S. Ware).—Very handsome, salmon pink, an immense size.

Pæonia Moutan Odorata Maria (T. S. Ware).—Blush white, very fragrant, large and full.

Begonia Princess Victoria (J. Laing & Co.).—A tuberous variety with large well formed bright pink flowers.

Begonia Duke of Edinburgh (J. Laing & Co.).—A tuberous variety, flowers of great size and excellent form, brilliant rich scarlet.

Azalia indica Souvenir de François Verreane (J. Laing & Co.).—A double white variety, flowers long and full, with an undulated margin to the petals, very distinct and free.

Pelargonium Henry Dawkes (Wiggins).

Lælia purpurata Mrs. H. Little (H. Little).

HARDY OFFICIAL PLANTS.*

(Mr. L. Castle's Paper, continued from page 402.)

IN the No. 10 issue of Mr. T. Christy's excellent serial* we find the genus *Strophanthus* exhaustively treated and freely illustrated, also a contribution by Mr. Lewis Castle on some officinal plants that may be grown in this country for commercial purposes. This article we reproduce:—

DATURA STRAMONIUM, L. (Thorn Apple).—An annual plant; a native of Europe, and in some districts so abundant as to be a troublesome weed; even in this country, when a few plants have been allowed to produce their seeds, the plants will come in all directions for several seasons. The seeds are produced in abundance, and a good supply of plants can soon be secured by sowing the seed under glass and planting out in May. In good soil they will grow rapidly, and produce their fruits and seeds before autumn. The seeds can also be sown out-of-doors after all danger of frost is past, and in ordinarily favourable seasons these too will afford plenty of fruits and seeds before the end of the season. The soil should be well dug, and, whether the seed is sown outside or the seedlings reared in houses and transplanted, they are better in rows, allowing good space between them, and in dry weather supplies of water will be found beneficial, as, being a rapidly growing plant, it soon exhausts the soil. Gerard states that the Thorn Apple was brought in seed from Constantinople by Lord Edward Zouch, and that he (Gerard) dispersed the seed through this country.

DELPHINIUM STAPHISAGRIA, L. (Stavesacre).—An annual or biennial plant; a native of South Europe, of which the seeds have been employed in medicine since the time of the Greeks. It is not quite hardy in this country, but in warm districts or sheltered situations it survives ordinary winters, and a little protection in less favoured places will make it safe, a handlight being the best means, though a slight mulching of some light material will commonly answer a similar purpose. It was cultivated by Gerard in 1596, and he mentions that he used to cover it "with ferne, to defend it from the March winds," which then, as now, often proved more destructive to plants than the frosts. The seeds can be sown in a bed or border of light soil in autumn, where the plants can be safely left out during the winter; otherwise the seeds may be sown in pans placed in a cold frame, and the seedlings transplanted in the spring. They succeed better when undisturbed, and usually produce their flowers and seeds in the following summer and autumn. If sown under glass early in the spring, and then planted out immediately the weather is fine enough, they will flower the same season, as they will also do in suitable situations if sown out of doors.

ECBALLIUM ELATERIUM, A. Rich (*Mormordica Elaterium, L.*). The Squirting Cucumber.—A perennial Cucurbitaceous plant, found very abundantly in the south of Europe, where in many places it is a troublesome weed. The expressed juice of the fruit constitutes the *Elaterium* of commerce, and is strongly purgative, like several other plants of the same family. The root is large and fleshy, with long trailing stems, and small oval fruits that when mature burst, and cast out the seeds with considerable force. In consequence of this peculiarity the plants must be looked over carefully, and the fruits gathered before they are fully ripe. The seeds may be sown in the same way as those of the *Colocynth*—namely, under glass early in the season, and subsequently planted out. Or the seed may be sown in the open ground, in light warm soil, when all danger of frost is past, and they will soon germinate. In rich soil the plants grow rapidly during the summer months, producing abundance of their fruits, and the roots may usually be solely left in the ground, with a thick covering of cocoa-nut fibre refuse, fern fronds, leaf soil, or anything of a similar character. The roots will last for several years, but a fresh stock can be raised from seed every season if desirable, as when once the plant is obtained seeds will soon be plentiful.

FENICULUM CAPILLACEUM, Gilib. Fennel. (*F. vulgare, F. officinale, F. dulce*).—An easily grown plant, requiring no special treatment, succeeding well in good garden soil. Sow the seeds in autumn or April, in drills, thinning the seedlings out slightly. Keep the ground clean, and in dry hot weather supply water occasionally if convenient. It is usually treated as a biennial, making its growth the first year, flowering and seeding the second, when the crop can be harvested in the same way as Caraway; but all the Umbelliferae grown for the sake of their seeds require prompt attention when these are approaching maturity.

* "New Commercial Plants and Drugs," Christy & Co., 25, Lime Street, London, E.C.

HELLEBORUS NIGER, L. (The Black Hellebore, or Christmas Rose).—This plant, with numerous varieties and hybrids between it and other species, are now chiefly cultivated in gardens for ornamental purposes, the pure white flowers produced in midwinter being especially valued. At one time the roots and rhizomes were considered important in medicine, but their use has been to a great extent discontinued, and what supplies are required are obtained from the Continent. It is not difficult to cultivate, for, though a native of mountainous districts in several countries of Europe, it succeeds in almost any soil that is well drained. Planted in good loam, rather moist, or in shaded situations, it grows luxuriantly, forming thick knotted roots and abundant foliage. Where the soil is not too heavy, an annual dressing of light manure or leaf soil is beneficial to the growth, and is especially useful for encouraging young plants; but any rank manure should be avoided, and the older plants will be better without it if they are grown for their roots alone. A good mulching of leaf soil is the safest application, but in ordinary garden soil even that can be dispensed with. The plants should be placed in rows where a large number is grown, and they can then be lifted as required. Dividing the roots in autumn and replanting the divisions in a similar way, is the best mode of increasing it.

HYDRASTIS CANADENSIS, L. (Orange Root, Yellow Puccoon).—A rather widely distributed plant in the United States, where the root is esteemed for its tonic and diuretic properties. It has a thick yellow root, from which arises a single stem and two leaves near the summit, and a greenish-white flower. The plant thrives in a moist shaded position, in light vegetable soil, and can be increased either by division or seeds.

HYOSCYAMUS NIGER, L. (Henbane).—Though this is known in two forms, as an annual and biennial, the latter is that chiefly valued for medicinal purposes, and is in some districts extensively cultivated for its roots, leaves, or seeds, all of which possess powerful properties that have been found useful in medicine, but exceedingly dangerous in the hands of the inexperienced. Owing to its possessing large fleshy roots, which strike deeply into the soil, the ground must be well dug and prepared for the plant, a dressing of old, not rank, manure, being advantageous. The seeds can be sown in autumn, in drills, and the seedlings thinned out freely the following spring. During this first season the roots and basal leaves are formed, but in the following year the stems and flowers are produced, and it is then that the qualities for which the plant is noted are most developed. By sowing each season a succession can be had, so that a certain quantity of the crop can be taken every summer or autumn.

INULA HELENIUM, L. (Elecampane).—An easily grown member of the Compositæ, the root of which is employed in medicine, and in the preparation of the liqueur Absinthe. It is a strongly growing perennial, a native of Europe, with long broadly lanceolate leaves, a stem 4 to 6 feet high, and bright yellow flowers. The roots are thick and fleshy, and were formerly used, like Salsafy and Scorzonera, as a vegetable or salading, but they are now only employed for medicinal purposes. The plant can be increased by seeds sown out of doors in autumn, in prepared beds, and the young seedlings transplanted the following year to their permanent quarters, allowing a foot to 18 inches between the plants, which should be placed in rows for convenience. A quicker way is to obtain offsets from the roots with buds attached, and insert these in rows like cuttings, to be transplanted when roots are formed and growth advancing. In either case the roots can be lifted for use the second year, as they progress rapidly in good loamy soils.

LAPPA MAJOR, Gaertner (Arietium Lappa, L., The Burdock).—In many places this is an excessively troublesome plant, increasing most rapidly, and difficult of eradication. It is a biennial, producing strong fleshy tap roots in any soil; and a decoction of these has been considered equal to Sarsaparilla. The growth is rapid, and the roots of seedling plants from seed sown in autumn are fit for lifting the following season. A Japanese plant, named Gobo, has received the title of Lappa edulis in gardens, but has been referred to Lappa major by recent writers, being regarded as only a cultural form of that species. It has been grown in Japan for a great many years in the same way that Salsafy and Scorzonera are here, the roots being used in a young state—namely, when they are about three months old.

MENTHOL.—*Mentha arvensis* must be propagated from root sets or cuttings, and care taken to watch the beds, to see that no seedlings take roots, for if they do they must be dug out, or the whole bed will be spoiled. A small-leaved Mint springs up, from seed it is supposed; hence the necessity for carefully watching the plants when cutting the stems for distillation. When land can be afforded the rows ought to be 3 feet 6 inches apart.

PIMPINELLA ANISUM, L. (Aulse or Aniseed).—An annual plant; chiefly grown in warm districts of Europe, and requiring, when cultivated here, a well-drained soil in a sheltered position. The seeds can be sown in April, and the crop obtained by August in favourable weather. It may be treated in the matter of soil and general cultivation like the other umbelliferous plants grown for the same purpose, and of which Fennel and Caraway have already been mentioned.

PODOPHYLLUM PELLATUM, L. (The May Apple, or American Mandrake).—An interesting plant, the roots of which supply the Podophyllin, so much in demand of recent years. It is a native of the United States, where it is found chiefly in woods, thriving in rich vegetable soil, and producing its fruits in July, which have a slightly acid taste; and Gray says they are eaten by "pigs and boys." It has a very distinct appearance in gardens, owing to its large peltate leaves being produced in pairs from each root. The latter are thick and fibrous, with a creeping perennial rootstock, which in America are collected in August and dried for use. It is not difficult to grow in this country, but requires a moist light soil, or preferably a peat border, where moderate shade can be provided by neighbouring shrubs. It can be easily increased by division of the roots, which may be transplanted in rows; but it is a good plan to reserve a few plants specially for propagation, so that it will not be necessary to disturb the general stock frequently, or until the roots are large enough for official purposes.

POLYGALA SENEGA, L. (Rattlesnake Root).—A North American plant, with a perennial root, becoming woody and much branched, with several

stems a foot or more high, alternate leaves, and loose spikes of white flowers. It was introduced to the attention of physicians in this country by a Dr. John Tennent, early in the eighteenth century, and was afterwards tried extensively in rheumatic disorders. The flowers are produced in the summer, generally during July, but it rarely ripens its seeds out of doors here, and the seeds obtained are often uncertain in germination. It is not difficult to grow, but requires some protection in winter, a light mulching over the roots being effectual in the south, but in cold exposed places a handlight would be the safest means of preserving it. Ordinary garden soil suits it, provided there be suitable drainage. The best way is to obtain roots for stock, but increase will be slow, as division must be practised very carefully.

SPIGELIA MARILANDICA, L. (Maryland Pink Root).—The Spigelia is included in the Strychnos family, which abounds in plants possessing extremely poisonous qualities, and, like many of its relatives, it yields an acro-na-coic poison employed in medicine. It is a perennial, with fibrous roots, and requires a deep moist bed of peat, or a light soil composed largely of leaf mould or vegetable refuse to ensure its success. It is impatient of any rank decaying material, and though it can be increased by division, the process is a slow one.

VALERIANA OFFICINALIS, L. (Valerian Roots).—A well known perennial plant, of which the roots have for a long period been valued as an antispasmodic. It is found wild in numerous districts in Europe and Asia, and has been cultivated rather extensively in Holland and North America for medicinal purposes. It is generally found in rather dry situations, attaining a height of 2 to 3 feet, but under cultivation, especially in shaded moist positions and rich soil, it becomes much stronger. Where it is grown for its medicinal qualities it is not, however, desirable to have it too strong, as in a smaller state, in drier poorer soils, it has been found that the qualities for which it is employed are more concentrated and powerful. The roots have long fleshy fibres, and the plant can be increased by division, either in spring or autumn, once or two seasons' growth rendering them fit for lifting, which should be done in autumn, and the roots stored for use.

VERATRUM ALBUM, L. (White Hellebore).—An European perennial plant, of very distinct appearance, owing to its broad ovate-ribbed leaves, which have obtained for it a place in most horders of herbaceous plants. The plant requires a rich and deeply worked soil, and in suitable positions it grows very luxuriantly, being readily propagated either by seeds or division. The seeds may be sown in the open ground in autumn, thinning the seedlings freely, and transplant them in the following spring, allowing ample space for development, as their large leaves require plenty of room. For quicker increase, dividing the plants is the better method, planting the divisions in autumn; and if good sized pieces are taken they will form roots large enough for official purposes in two or three years' time. The seedlings require three or four years to attain similar size. This plant was cultivated by Gerard in 1596.

ROYAL HORTICULTURAL SOCIETY.

MAY 24TH.

THERE WAS a comparatively small number of exhibits on Tuesday last, but there were several plants and groups of special interest.

FRUIT COMMITTEE.—T. F. Rivers, Esq., in the chair. Present, Dr. Hogg, Messrs. Saltmarsh, Lee, Warren, Woodbridge, Vitch, Goldsmith, Norman, Willard, Ford, Haywood, Blackmore, Smith, and Fitt.

Mr. Palmer, gardener to Hume Dick, Esq., Thames Ditton House, sent a very fine dish of Auguste Nicaise Strawberry, to which a cultural commendation was awarded. He also sent a fine dish of Asparagus, to which a letter of thanks was awarded. Mr. E. Ward, The Gardens, Stoke Edith Park, Ledbury, sent a late Broccoli. Mr. Lockie, Oakley Court, Windsor, sent six specimens of a seedling Melon, called Beauty of Windsor, raised between Dr. Hogg and Beauty of Windsor, but it was not superior to others already in cultivation. Mr. G. Beaton, The Gardens, Style Hall, Gunnersbury, sent three dishes of Pears, Suzette de Bavay, Easter Beurré, and Winter Bon Chrétien, for which a letter of thanks was awarded.

Messrs. Sutton & Sons, Reading, offered several prizes for a brace of Cucumbers, Sutton's Purley Park Hero and Improved Telegraph. There were six competitors. Mr. T. Lockie, The Gardens, Oakley Court, Windsor, was awarded the first prize for Sutton's Improved Telegraph, very fine, long, even fruits. Mr. C. J. Waite, Glenhurst Gardens, Esher, was second with Purley Park Hero, even and good. J. Downing, Esq., The Shrubby, Enfield, Middlesex (gardener, Mr. P. Cornish), was third. All the exhibits were very even in quality.

FLORAL COMMITTEE.—Present: G. F. Wilson, Esq., in the chair; and Messrs. J. Douglas, J. Fraser, W. Wilks, H. Bennett, H. Herbst, R. H. Lowe, G. Duffield, G. Paul, Richard Dean, B. Wynne, G. Noble, J. Dominy, H. M. Pollett, D. Pilcher, F. Baines, J. O'Brien, A. J. Lendy, H. Turner, E. Hill, Shirley Hibberd, W. Holmes, and James Hudson.

Mr. T. S. Ware, Tottenham, was awarded a silver Banksian medal for a large and excellent group of Pæonies and hardy flowers, comprising many beautiful species and varieties. The Pæonies were chiefly forms of the Mountain or Tree type, some of the most noticeable as regards size and colour of the flowers (all double) being Athlete, pale rosy purple; Cerise Pallida, bluish white; Madame Stuart Low, salmon red; Reine Elizabeth, bright red, very fresh and good, together with several that were certificated. Of the hardy plants there were numerous specimens, Primula Sieboldi being largely represented, one variety named Vivid, with bright rosy purple flowers being very handsome. A panful of Trillium grandiflorum, with over three dozen large white flowers, was prominent in the group. The pretty double white Ranunculus aconitifolius fl.-pl., the Yellow Globe Flowers, Trollius europæus, nanus, and cæcasicus were good; the dark crimson Tulipa elegans and fulgens, Fritillarias, Polemonium Richardsoni, Irises, and a few late Daffodils were also in the collection. There was a small group of hardy Cypripediums, comprising large pots of C. calceolus, lip pale yellow, sepals and petals brown; C. pubescens, the lip of rather a darker yellow colour, with few red markings in the margin, the sepals and petals lighter brown, and the latter more twisted; C. occidentale (montanum), lip white, sepals and petals narrow brown; and C. arietinum, a diminutive form, the lip half an inch long, curiously pear-shaped,

white at the upper part and purplish at the base, and sepals and petals narrow and brown.

E. G. Loder, Esq., Floore Weedon (gardener, Mr. Goldsmith) exhibited three plants of *Myosotidium nobile*, extremely vigorous, and bearing three, four, and five cymes of its bright blue flowers. Mr. Loder was awarded a cultural commendation last year for the plants shown of this "New Zealand Forget-me-not," and one of the specimens was figured in this Journal, page 337, April 29th, 1886. A cultural commendation was again awarded. Mr. Loder also had a fine plant of *Ranunculus cortusæ-folius*, described below. F. A. Philbrick, Esq., Q. C., Oldfield, Bickley (gardener, Mr. Heims) sent a plant of *Hexisea bidentata*, a curious little Orchid with diminutive flowers, with narrow sepals, petals, and lip of equal size and bright orange red. They are borne at the apex of narrow cylindrical fusiform contracted pseudo-bulbs. From the Society's Gardens, Chiswick, came a plant of *Tropæolum azureum* with numerous purplish mauve flowers. Mr. Charles Vuylsteke, Loockristy, Ghent, Belgium, showed several hardy hybrid Azaleas of the pontica and mollis types. Mr. C. Turner, Slough, was awarded a vote of thanks for *Pelargonium Magpie*, one of the French spotted decorative type with large flowers, white with dark crimson purple blotches in each petal.

Messrs. James Veitch & Sons, Chelsea, showed a group of new plants, comprising half a dozen new Tree Pæonies, two of which were certificated; the others were *Uranie*, purple; *rosa superba*, bright red, and *Grand Duc de Bude*, purple streaked. A basket of the double *Syringa vulgaris Lemoinei* fl. pl. was shown (vote of thanks). It was certificated in 1881. *Azalea rosæflora* var. *Rollisconi* was represented by a number of small plants bearing beautifully formed salmon red flowers. *Spiræa confusa* was very graceful, with profusion of neat trusses of white flowers. Several hardy hybrid Azaleas were shown, and two were certificated, also the pretty *Rosa lucida* Rose Button, the bright pink *Hydrangea stellata* fl. pl., and *Illicium floridanum*. Mr. A. Waterer, Knap Hill, Woking, had three fine varieties of *Azalea mollis*, yellow and orange coloured (vote of thanks). A bronze medal was awarded to Mr. A. Waterer for a group of double hybrid hardy Azaleas of the occidentalis type, varied in colours and extremely fragrant.

Messrs. Wood & Ingram, Huntingdon Nurseries, showed a seedling decorative *Pelargonium* named *J. Wood Ingram*, of a remarkably bright cerise scarlet colour, the upper petals maroon, margined scarlet, very free, and of good form. Mr. R. Dean, Ealing, showed plants of *Cinerarias* that have been wintered without fire heat, also two good varieties of *Polyanthus* named *Snowdrift* and *Governor*. Messrs. Paul & Son, Cheshunt, was awarded a bronze medal for a large collection of choice hardy and alpine plants, comprising fine examples of *Arnebia echioides*, *Tiarella cordifolia*, *Gentiana acaulis*, *Anemone fulgens*, *Thalictrum anemonoides*, *Trilliums*, *Trollius*, and *Phloxes*. Messrs. Carter & Co., Holborn, had a group of *Mimulus* of their special Queen's Prize strain, very fine flowers and rich colours. Messrs. J. Green & Nephew, 107, Queen Victoria Street, E.C., showed specimens of their ornamental glasses and vases.

CERTIFICATED PLANTS.

— *Ranunculus cortusæ-folius* (E. G. Loder, Esq.).—A native of the Canary Islands and Madeira, and figured in the "Botanical Magazine," 1852, plate 4625. It has been described as hardy, but it is not found to be so at Floore. The leaves are somewhat heart-shaped, 6 inches and more in diameter, somewhat lobed, and with a dentate margin. The flowers are borne in heads 2½ feet high, and are individually 2 inches in diameter, very bright yellow, and much like an enlarged common Buttercup.

Odontoglossum Pescatorei, *Pollett's variety* (H. M. Pollett, Esq.).—An exceedingly pretty variety, with neatly formed flowers, each sepal blotched in the centre with deep purple and one or two small round purple dots in the petals. The panicle was compact and strong.

Phalanopsis speciosa (Major-General E. S. Berkeley).—A beautiful species with plain green foliage, and a scape of six flowers with even ovate sepals and petals of a shining purple hue, the pedicel and column white.

Pæonia Moutan Banieri (J. Veitch & Sons).—Very large double rosy crimson, very handsome.

Pæonia Moutan Isis (J. Veitch & Sons).—Very bright red, large flower.

Abies excelsa mutabilis (J. Veitch & Sons).—A very distinct variety, the tips of the young shoots clear yellow, some 2 inches long or more.

Azalea Beauty (J. Veitch & Sons).—These two Azaleas were shown as hybrids between mollis and occidentalis. This one was bluish with a yellow blotch in the upper petal, very free and fragrant.

Azalea Maiden's Blush (J. Veitch & Sons).—Warmly tinted with rose, the upper lobe yellow, equally as free and sweet as the other.

Azalea Peach Blossom (Anthony Waterer).—A double variety of the occidentalis type, bright pink, and very sweet.

Azalea Snowflake (Anthony Waterer).—One of the same type as the above, pure white and excellent in shape. Exceedingly fragrant.

Mimulus Carter's Jubilee Queen's Prize (James Carter & Co., High Holborn).—A very handsome variety, with rich scarlet flowers, edged yellow and spotted in the throat.

Pæonia Moutan lactea (T. S. Ware).—Handsome, large, pure white, beautiful in contrast with the darker varieties.

Pæonia Moutan odorata Maria (T. S. Ware).—Flower of immense size, flush, a grand variety.

Pæonia Moutan Zenobia (T. S. Ware).—A rich magenta bold flower, very showy.

SCIENTIFIC COMMITTEE.—Present: G. F. Wilson, Esq., in the chair; Messrs. Pascoe, Michael, Murray, Ridley, O'Brien, Smee, Prof. Church, Dr. Lowe, Hon. and Rev. J. T. Boscawen, and Rev. G. Henslow.

Peristeria sp.—Mr. Ridley reported on the two forms exhibited at the last meeting, having discovered no trace of sexual difference; the colouring of the two supposed species being scarcely specific in character.

Plants Exhibited.—*Aster eximium*.—Dr. Low exhibited specimens of this Everlasting, received from Lady Frere, and brought from South Africa. It was introduced into England in 1793 and figured ("Bot. Reg."), tab. 582, and the *Journal of Horticulture*, page 233, March 24th, 1871.

Cerapogon pallidum.—Shown by Mr. Smee. It had been accidentally imported with Orchids from the Himalayas.

Ranunculus cortusæ-folius.—A fine plant nearly 3 feet in height was sent by Mr. Loder. It is a native of the Canary Islands and Madeira ("Bot. Mag.," t. 4625). It is said to be hardy, but has not proved to be so at Floore

Weedon. It was remarkable not only for the large size of the golden yellow flowers, more than 2 inches across, but from the seemingly total absence of the honey-glands at the base of the petals.

Cypripedium arifolium.—Mr. Ware sent a plant of this curious Orchid, figured in the "Bot. Mag." in the year 1813, tab. 1569. It is characterised by the anterior pair of sepals being free instead of coherent as in most species.

Monstrous Flowers.—*Calceolaria*, double, with the "slipper" repeated, sent by Mr. Veitch, and Primroses with foliaceous sepals free and coherent, also partially coloured, &c., forwarded by Mr. A. Dean.

THE LIME, CITRUS LIMETTA.

THE illustration (fig. 74) and appended particulars by a successful cultivator will give "A Southern Correspondent," who sends an inquiry on the subject, the information he desires.

"A glass case is attached to the end of a common greenhouse, and the Lime, which is planted out, is trained upon a plain lozenge-shaped galvanised wire trellis affixed to the wall, which is merely a continuation of the wall against which the greenhouse is erected. This trellis affords great facilities for arranging the flexible shoots symmetrically upon it, instead of nailing them against the wall, and nothing can exceed the unique and beautiful appearance of the case, covered as the plant always is with blossoms, green fruit in all their stages of development, and clusters of bright golden fruit at full maturity. No artificial



Fig. 74.—The Lime, Citrus Limetta.

heat is supplied by hot-water pipes or otherwise in the case itself, but an end sash of the greenhouse, before alluded to, is thrown open so as to admit the passage of warm air into the case when the weather is very severe; but unless there is a prevalence of frost this heat is not admitted, as the cool, steady, rather humid atmosphere of the case is much more congenial to the health of the plant than if recourse were constantly had to the warmth derivable from the greenhouse.

"The border inside the case was excavated to the depth of 3 feet, and filled up first with rubble drainage, such as brickbats, &c., to the depth of 9 inches; then good sound turf, cut from a pasture field, was laid one sod thick neatly upon the top of the rubble, grass side downwards, and upon the sods was placed a compost of good sound turfy loam, well decayed dung, leaf mould, and coarse sand or grit in about equal quantities, the whole chopped roughly and blended together, but on no account sifted or beaten fine. On this soil inside the case is placed a common wooden trellis for walking on, such as is commonly used in vineries and peach houses; this is highly desirable, for it prevents the soil from becoming close and sodden, and keeps the border free and open.

"The Lime having been thus planted requires to be very cautiously watered at first, but as soon as the roots have worked into the congenial soil, and vigorous shoots are produced, a liberal supply of water should be given, and the whole plant syringed occasionally in the evening; free admission of air during the day is also requisite. When the wire trellis is well covered the plant will commence bearing abundantly, and water must be administered copiously, which as the border is well drained, will

impart health and vigour to the plant, and the soil must never be permitted to become thoroughly dry. This point should be well looked to, for nothing is so pernicious to the general well-doing of the Lime as permitting the roots to get into this condition; occasional supplies of liquid manure in a very diluted state may also be beneficially given during the spring, summer, and autumn, not oftener, however, than about once a fortnight. I have alluded to syringing the Lime—this, however, should not be done during the time the plant is in blossom, as that process would damage the fertilising quality of the pollen, and thus prevent the fruit from setting freely.

“Various species and varieties of the Citrus family have, with the glorious appearance and the refreshing health-bestowing qualities of their beautiful fruit, for ages attracted the universal attention of mankind; and the Orange, the Citron, and the Lemon, with their numerous varieties, are now, and have long been, appropriate ornaments in all gardens possessing any pretensions to horticultural eminence. From some cause, however, probably from ignorance of its comparatively hardy constitution and facile culture, the Lime (*Citrus limetta*) has not met with that general cultivation which it deserves; certainly it might and ought to be grown advantageously in every good garden, for not only are the immature green fruit, which are thinned off by hundreds, delicious in a preserved state, but the ripe fruit are serviceable wherever a Lemon is required, to which the juice and rind of the Lime are in every respect vastly superior. The merits of Lime juice as a specific for scurvy are too well known for me to do more than just in conclusion allude to the subject. We give air freely in summer by taking off part of the case, and stop all over-vigorous shoots by simply pinching them off at about 6 inches from the plant.”

NEW PLANTS OF 1886.

(Continued from page 340.)

Inf., Inflorescence.—*L.*, Leaves.—*Fl.*, Flowers.—*Fr.*, Fruit.—*H.*, Hardy.—*H.H.*, Half-hardy.—*G.*, Greenhouse.—*S.*, Stove.—*Per.*, Perennial.—*Shr.*, Shrub.—*In.*, Inches.—*Lin*, Line = One-twelfth of an inch.—*Fl.*, Foot or Feet.—*Diam.*, Diameter.—*Pet.*, Petals.—*Sep.*, Sepals.

N.B.—Unless specified, all Orchids may be considered to be stove epiphytes.

Rosa Ecæ. (*G. C.* xxiv., p. 468.) Rosaceæ. H. shr. A distinct form, with small l. having about seven leaflets, red shoots, broad-based prickles, and small yellow fl. Afghanistan.

Rosa Godefroyæ. (*R. H.* 1886, p. 261.) H. shr. A fine Rose, forming a compact bush, glabrous in all parts; the l. with 5-7 leaflets shining dark green; sepals longer than the buds; fl. large, white, with numerous petals. Persia, probably a garden variety.

Rosa pisocarpa. (*B. M.*, t. 6857.) H. A pretty little Rose, with reddish glabrous stems, armed with straight prickles. L. rather small, with five leaflets. Fl. 2-3 together, bright pink, about an inch in diam. Fr. globose, reddish, $\frac{1}{2}$ in. in diam. N. California.

Roydsia suaveolens. (*B. M.*, t. 6881.) Capparidaceæ. S. shr., free-flowering, and sweet scented. L. 4-12 in. long, oblong or oblong-lanceolate, acute, bright green. Racemes 3-6 in. long, erect. Fl. $\frac{1}{2}$ in. in diam.; calyx dull reddish; corolla none; stamens numerous, yellow; ovary on a short stalk, yellowish. India.

Saccolabium Blumei, var. *Russelianum*. (*W. O. A.*, pl. 238.) Orchidææ. A very fine form, with long dense pendulous racemes of white fl., spotted with mauve-purple on the sep. and pet., and having a mauve-purple lip with a white apex.

Saccolabium giganteum, var. *Petotianum*. (*G. C.* xxiv., p. 746.) A variety with large rigid fl. of dull white. Cochiu China.

Saccolabium violaceum, var. *Harrisonianum*. (*W. O. A.*, pl. 236.) This is synonymous with *S. Harrisonianum*.

Sagenia cicutaria. (*Williams' Cat.*, p. 26.) Filices. S. A bold free growing Fern, producing two kinds of fronds, one broader, the other narrower in their parts, both fertile. Stipes dull brown, scaly at the base. Fronds 1-2 ft. long, ovate-deltoid, the upper part pinnate-pinnatifid, the lowest pinnæ obliquely bi-pinnatifid; surface of the frond pubescent, or abundant, punctiform. Syn. *Nephrodium cicutarium*. Tropics.

Sagenia mamillosa. (*G. C.* xxvi., p. 38; *Ill. H.*, pl. 598.) Filices. S. A distinct and handsome Fern, with oblanceolate, entire, and pinnatisect fronds, 1-2 ft. long. The lobes of the pinnatisect fronds are 4-6 on each side, lanceolate, acute, entire. Sori copious, orange coloured, seated in deep cavities which project as pointed tubercles on the upper surface. Moluccas.

Sambucus racemosa, vars. *plumosa* and *serratifolia*. (*R. H.* 1886, p. 399.) Caprifoliaceæ. H. shr. Two varieties scarcely differing from each other, having the leaflets rather crowded, deeply pinnatifid in *plumosa*, rather narrower and not so deeply pinatifid in *serratifolia*. Garden varieties.

Saxifraga huguenini. (*Gf.*, t. 1230, f. B.) Saxifragaceæ. H. per. A neat little alpine plant 1-2 in. high, of creeping tufted habit; the stems clothed with imbricating oblong ciliate-toothed l. $\frac{1}{4}$ in. long, and ending in a solitary shortly stalked white fl. Alps, Eastern Switzerland.

Saxifraga stracheyi, var. *alba*. (*Gf.*, t. 1228.) H. per. A variety with white fl., perhaps the same as *S. Milesii*. Himalaya.

Scabiosa caucasica, var. *elegans*. (*Gf.*, t. 1212.) Dipsacææ. H. A fine form of this very ornamental plant, with long, petiolate, lanceolate, entire radical l., pinnatisect stem-l., and handsome heads of blue fl. $2\frac{1}{2}$ in. in diam.

Schismatoglottis neoguineensis. (*G. C.* xxiv., p. 776; *Gf.* 1886, p. 187.) Araceæ. A reference to its right genus of the plant known in gardens under the name of *Colocasias neoguineensis*.

Schomburgkia chionodora. (*G. C.* xxv., p. 73.) Orchidaceæ. Something in the way of *S. Humboldtii*, with many angled bulbs a ft. or more long, having but a single central cavity. L. cuneate oblong, obtuse,

4-5 in. broad. Fl. numerous, white, with a purple spot on the lip. Sep. ligulate acute; pet. spatulate, blunt; lip large, 4-lobed, toothletted and wavy, with five entire keels on the disk. Central America.

Selaginella flagellifera. (*Bull. Cat.*, p. 9.) Lycopodiaceæ. S. A graceful species with long flagelliform stems, clothed with spreading cordate bright green l. Fruiting spikes $\frac{1}{2}$ in. long. Fiji.

Selaginella gracilis. (*G. C.* xxv., p. 752.) S. An elegant species, with sub-erect stems 2-3 ft. long, pinnately branched, rather rough; pinnæ narrow lanceolate, 4-5 in. long, pinules simple, the lower ones an inch long, $\frac{1}{8}$ in. broad. L. ovate-falcate, bright green; stipular l. narrow lanceolate, cuspidate, parallel and close set. Spikes terminal, tetragonal, $\frac{1}{2}$ -1 in. long. South Sea Islands.

Selenipedium caudatum, var. *roseum*. (*Ill. H.*, pl. 596.) Orchidaceæ. A handsome variety, with brighter coloured fl. than in the type. The very long pet. are rosy-purple, and the lip is also washed with the same colour.

Sericographis mohintii. (*R. H.* 1886, p. 205.) Acanthaceæ. G. or H. H. undershr. of bushy habit, with opposite elongate-ovate, entire, coriaceous l., and axillary orange-yellow fl. Corolla bilabiate, the elongate tube inflated above, the upper lip slightly arched and the lower lip curved in a spiral and 3-toothed at the apex. Mexico.

Smilax discolor. (*Bull. Cat.*, p. 9.) Liliaceæ. S. climber with variegated foliage. L. oblong-ovate, suddenly acuminate, 9 in. long by 4 in. broad, of a rich green blotched in the young state with purple-brown. S. America.

Solanum albidum, var. *Poortmanni*. (*R. H.* 1886, p. 232, f. 67.) Solanaceæ. H. H. A noble and very ornamental herbaceous plant, with large pinnatifid l. 2 ft. long, bright green above, white tomentose beneath. The small white fl. are produced in numerous cymes towards the end of the season, on the young white-tomentose shoots. Andes.

Solanum jasminoides, var. *floribundum*. (*R. H.* 1885, p. 543.) Solanaceæ. H. H. or G. climber. A variety with smaller and less pinnatifid l., and more floriferous than in the type. Garden variety.

Sorbus aucuparia, *foliis aureis*. (*R. H.*, 1886, p. 399.) Rosaceæ. H. tree. An ornamental form, having the thickish tomentose leaflets marked with yellow, which deepens with age. Garden variety.

Spathoglottis ægustorum. (*Cat. C. C. d'H.*, p. 5; *G. C.* xxv., p. 9; *L.*, p. 25.) Orchidaceæ. A fine species with ovoid brown tinted bulbs, broad cuneate-oblong acute l., and a nearly capitate raceme of pale lilac fl. The lip is tripartite, the side lobes are rectangular, retuse, the mid lobe is long, clawed, oblong, and 2-lobed at apex. Sunda Isles.

Spiranthes leucosticta. (*Gf.* 1885, p. 243.) Orchidææ. S. terrestrial Orchid, with petiolate, oblong acute, white-spotted l., and a few-flowered raceme of hairy green fl., with a brown tipped lip. Sep. lanceolate, pet. linear, the pet. and dorsal sep. forming together the galea, lip ligulate, dilated in front, the apex obtusely triangular. Columbia.

Stellaria graminea, var. *aurea*. (*R. H.* 1885, p. 441.) Caryophyllaceæ. H. herb. A charming variety of a golden-yellow colour, useful for carpet bedding, &c. Garden variety.

Synthyris reniformis. (*B. M.*, t. 6860.) Scrophulariaceæ. H. per., suitable for rockwork. L. all radical, with long petioles and roundish l., deeply cordate at the base, bidentate on the margins. Peduncles 5-10 in. long, with a few spatulate reduced l. and a long raceme of small, pretty blue fl.; the corollas are 4-lobed, with the upper lobe bifid. Stamens 2. Capsule flattened, roundish, with a notch at the apex. California.

Syringa japonica. (*G. C.* xxv., p. 560 and 561, f. 123.) Oleaceæ. H. shr. or small tree of ornamental character, with deciduous, coriaceous, elliptic acute, strongly net veined l., and large panicles of small white fl. Japan.

Tagetes gigantea. (*R. H.* 1886, p. 107.) Compositæ. H. H. A stout herbaceous plant 6-9 ft. high, with a stout pruinose stem, and opposite pinnate l., with soft, narrowly elliptic toothed leaflets, having a balsamic odour. Flowers unknown. Bolivia.

Taxus baccata, vars. *adpressa*, *cheshuntensis*, *dovastoni erecta*, *fructu-luteo hibernica*, *variegata-argentea*, and *variegata-aurea*. (Notes on these garden forms will be found in *R. H.* 1886, p. 103-6, f. 18-22.)

Tecoma amboinensis. (*Bull. Cat.*, p. 9.) Bignoniaceæ. A handsome free-flowering S. climber, with pinnate l., and axillary racemes of orange-red fl. 3-4 in. long. Amboina.

Tecophylea cyanocrocus, var. *leichtlinii*. (*Gf.* 1886, p. 87.) Liliaceæ. A pretty variety, with deep blue flowers without any trace of yellow. The l. is like that of *Gentiana verna*.

Thrixspermum indusiatum. (*G. C.* xxv., p. 585; *Cat. C. C. d'H.*, p. 5.) Orchidaceæ. A small flowered species, with soft, shining, oblong l., 3 in. broad, and short dense racemes of yellowish fl. spotted with red, the lip being white; the spur is cylindric, with a kind of bucket at its apex. Sunda Isles.

Thunia marshalliana, var. *ionophlebia*. (*Bull. Cat.*, p. 9.) Orchidææ. A distinct form, having leafy reed-like stems, with oblong-lanceolate acuminate l. about 6 in. long, glaucous beneath; and large handsome pure white fl., with a sulphur-yellow disk and crest on the lip.

Tillandsia foliosa. (*B. H.* 1885, p. 249.) Bromeliaceæ. S. A showy species, with an ample pyramidal panicle of violet fl. Mexico.

Tillandsia inflata. (*B. M.*, t. 6882.) S. This is the plant better known as *Vriesea incurvata*. Brazil.

Tillandsia umbellata. (*R. H.* 1886, p. 60, with plate.) G. epiphyte. A beautiful species, with arching linear green l. 10-14 in. long, and a short spike of 5-6 fl. $2\frac{1}{2}$ in. in diam., of a brilliant blue, with a white feathered blotch at the base of each pet. Andes of Ecuador.

Todea grandipinnula. (*G. C.* xxv., p. 752.) Filices. A handsome S. Fern, with broadly ovate, tripinnate fronds 1-1½ ft. long, 8-9 in. broad, pellucid-membranous. Pinnæ sessile crowded, oblong-ovate. Pinnules overlapping, $\frac{1}{4}$ in. long, ovate, pinnatifid. Garden hybrid.

Trichocentrum tigrinum, var. *splendens*. (*L.*, pl. 24.) Orchidææ. A fine variety, having the base of the large obcordate lip of a rich purple colour.

Trichomanes pinnatinerva. (*G. C.* xxv., p. 787.) Filices. S. A minute filmy Fern, with a dark tomentose thread-like rootstock, and scattered ovate fronds 2-3½ lines long, 1-2 lines broad, on dark tomentose stipites $\frac{1}{4}$ -1 line long, pellucid clear bright green. British Guiana.

TRITONIA WILSONI. (*G. C.* xxvi, p. 38.) Iridaceæ. G. bulb. A small flowered Gladiolus like plant, with narrow linear l., and a simple or branched lax spike of white fl. flushed with purple, about an inch in diam., with obovate-cuspidate segments. Port Elizabeth.

TYDEA HYBRIDA, var. NANA. (*Gfl.* 1886, p. 505, f. 60.) Gesneraceæ. S. per. A beautiful and exceedingly floriferous dwarf variety, with yellow crimson and purple fl., dotted with purple. Garden hybrid.

VACCINIUM MORTINIA. (*B. M.*, t. 6872.) Vaccinæ. G. or H. H. much branched shr. of ornamental character, with small ovate leathery l., and clusters of pretty rose-pink fl. about $\frac{1}{4}$ in. long. Corolla ovoid, with short recurved lobes. Andes of Ecuador.

VANDA LINDENI. (*G. C.* xxvi, p. 70; *L.*, pl. 56.) Orchideæ. Something in the way of *V. hastifera*, with a rich raceme of handsome fl. Sep. and pet. cuneate-oblong, wavy, light yellow, with red dots on the disk. Lip with nearly square side lobes, and a triangular two-edged mid-lobe going out into a sharp angle under two tumours at the apex. Sulcate beneath, with a linear velvety ascending auricle on each side at the base, and three furrows over the disk, the colour is whitish-yellow, with purple spots on the tumours and side lobes and four purple lines on the disk, tip under the tumours brownish. Spur conical, hairy inside. Sunda Isles.

VANDA ROXBURGHII, var. RUBRA. (*Ill. H.*, pl. 579.) A handsome variety, with brown sep. and pet. tessellated with yellow, yellowish-white outside, lip reddish.

VANDA SANDERLANA, var. LABELLO VIRIDI. (*L.*, pl. 4.) A distinct variety, having a green lip. Mindanao.

VANDA SUAVIS, var. LINDENI. (*L.*, pl. 60.) A variety having the sep., pet., and base of the lip white with purple spots, and the rest of the lip purple.

VITIS JAPONICA, var. CRASSIFOLIA. (*R. H.* 1886, p. 81.) Ampelidæ. H. A variety with large, very thick, coriaceous, 3-lobed l., bright green above, cobwebby-tomentose beneath.

VRIESIA GRACILIS. (*Gfl.* 1886, p. 161 and p. 163, f. 11.) Bromeliaceæ. S. A slender species, with a lax rosette of green l. 10-12 in. long by $2\frac{1}{2}$ in. broad, and a slender panicle about $2\frac{1}{2}$ ft. high, with distant, distinct, inconspicuous fl., subtended by spreading reddish bracts with green tips. Brazil.

WISTARIA SINENSIS, var. VARIEGATA. (*Williams' Cat.*, p. 26.) Leguminosæ. H. shr. A variety with bright silvery-variegated foliage.

ZALACCA NITIDA. (*Bull. Cat.*, p. 9.) Palmæ. S. A fine Palm, with a spiny trunk and handsome pinnate dark green l. In the young state the l. are two-parted. West-Africa.

ZINOIBER BREVIFOLIUM. (*G. C.* xxvi, p. 390.) Scitamineæ. S. A dwarf Ginger about a ft. high. Stems naked below, with a few oblong-lanceolate or elliptic l. above, 2-4 in. long, $1\frac{1}{4}$ in. broad. Fl.-spike $2\frac{1}{2}$ -3 in. long, fusiform, with adpressed, oblong, orange-yellow bracts striped with red. Fl. yellow, rather small, with narrow segments, and a narrow 3-lobed lip. Philippines.

ZYGOPETALUM LEOPARDINUM. (*G. C.* xxvi, p. 199.) Orchideæ. A charming plant of hybrid origin, with light greenish-yellow sep. and pet. spotted with brown. Lip with a transverse obtusangled cordate blade of a beautiful purple-mauve colour, and an ochreous callus with 13 teeth. Garden hybrid.



FRUIT FORCING.

PINES.—Fruiting plants with the fruit in an advanced state require a moderately high temperature and moist atmosphere to secure large well finished fruit, but ventilation must be strictly attended to, admitting air at the top of the house at 80°, maintaining the temperature by day at that point to 90°, or 5° more with liberal ventilation, closing at 85°. Early closing with too close and moist an atmosphere enlarges the crowns, which are generally quite large enough. Unless ventilation is early and ample scorching of the crowns may result, spoiling the appearance of the fruit. Examine the plants twice a week, applying water only when it is required; it may be enriched with guano or some other manure, but let it be weak, and do not give it after ripening commences. Syringe the plants and house two or three times a week, employing fire heat to maintain the temperature at 70° by night and 75° by day. The bottom heat keep steady at about 85°, not less than 80°, nor above 90°. Plants from which the fruit is cut may be placed in a part of the house by themselves, keeping the suckers on them for another fortnight, or until the end of the month, when they may be potted along with those held in reserve from March. Potting the suckers as the fruit is cut entails constant attention, which is not necessary to insure a regular supply of fruit throughout the year. Only three pottings of suckers are required—viz., March, June, and September.

VINES.—*Early Muscats.*—Vines started in December are now ripening, and must not lack water at the roots; apply liquid manure if the crop be heavy and the Vines not luxuriant. The inside borders must be examined every week, and if moisture be necessary give it liberally and warm (90°). Muscats should have a temperature all through 5° higher than Black Hamburgh, especially when ripening, if they are to have the amber colour so characteristic of thorough ripeness. In order to perfect finish the house must have a circulation constantly of rather dry warm air, and especially at night, so as to prevent the deposition of moisture on the berries, and increasing it early for a similar

reason. If there is likely to be any danger of damp arising from the border to the prejudice of the berries mulch it after watering with a couple of inches of short rather dry manure, and cover this with about 3 inches thickness of clean dry straw preferably chopped coarsely.

Vines Started Early in the Year.—Sweetwater, Black Hamburgs, &c., are ripening their crops, and though a rather drier atmosphere is desirable it is best secured by free ventilation, having a little at the top of the house constantly, as nothing contributes more to good finish than a circulation of warm air after the Grapes commence colouring. The inside border must have a thorough watering, and a mulch of half-decayed manure will secure moisture sufficient for the perfection of the crop; yet even when the fruit is ripe Vines must not suffer by lack of water at the roots. The temperature should be 70° at night, 5° less on cold nights, admitting air at 75° and increasing the heat to 85° or 90°, with suu and full ventilation, reducing the ventilation at 80°, closing all but a small space at the top of the house. Maintain good atmospheric moisture by damping the house two or three times a day, keeping the evaporation replenished with liquid manure until the Grapes are well advanced in colouring, when a drier condition of the atmosphere will be advisable; but moisture must not be entirely withdrawn or the foliage will suffer, and premature ripening of the wood will be induced.

Early-forced Vines.—Where the Grapes are ripe and fermenting materials were applied to the borders, part of it can now be removed, leaving sufficient for a good mulch, and if the roots are active in the lower part of the fermenting materials, a little fresh material may be placed on the surface to protect them from the atmosphere; besides, it gives the border a neat appearance. Fire heat will only be necessary to keep the temperature at about 60° at night, ventilating freely by day. Black Hamburgs will need a slight shade to prevent their losing colour. A moderate amount of air moisture is necessary for the benefit of the foliage, and it will not prejudice the Grapes if it is not allowed to become stagnant. Encourage lateral growth; it tends to maintain the activity of the roots and to prevent premature ripening of the foliage, which must be kept clean and healthy as long as possible, or the Vines will start into growth again, when they should be pruned and allowed a few weeks' rest.

Succession Houses.—Thinning must be attended to early and followed up persistently, morning and evening being the best time alike for the Grapes and the operator. Let the laterals extend as far as space permits, not crowding the foliage unduly, the principal leaves having full exposure to light and air, especially those that feed the buds at their base for affording next year's supply of fruit. Stop or remove all those not required, not allowing growth to be made that must be afterwards removed in quantity, as it tends to a cheek. Of moisture in the borders let there be no lack, and to prevent its escape and to encourage surface roots mulch with some rather lumpy manure, and not so thick as to exclude air, 2 or 3 inches thickness being quite ample. Close early as soon as there is a decline in the solar heat or from that source, and increase it to 90° or 95° with a plentiful supply of atmospheric moisture, occasioned by damping available surfaces at closing time, and before nightfall admit a little air at the top of the house, damping with liquid manure, leaving the ventilation on all night, and increasing it by the time the sun acts powerfully on the house. The temperature should fall to between 60° at 65° at night.

Late Houses.—Forward these as speedily as possible, except late houses of Hamburgs, which need not be hurried. Suffice if they have the fruit set so as to admit of thinning during the first fortnight of June; but thick-skinned sorts should have a night temperature of 65° and 70° to 75° by day artificially, advancing to and at 80° to 85° or 90° through the day. When in flower, as they now mainly are, allow a night temperature of 70° and 80° by day, with a free circulation of air, but not a drying current, a genial condition of the atmosphere being maintained by damping available surfaces, and brushing the shy setters with a camel-hair brush to free the stigmas of the glutinous matter and assist the dispersion of the pollen, and where it is deficient taking it from those that afford it abundantly to make good the defect. Remove duplicate shoots and duplicate bunches unflinchingly, overcropping and overcropping being the greatest evils in fruit culture, reserving the best shaped and most compact bunches.

PLANT HOUSES.

Aerides.—These, as well as Vandas and Saccolabiums, will be growing freely, provided the plants have a close moist atmosphere around them. Abundance of water should be poured into the pots or baskets in which they are growing, and the syringe used freely on bright days. After this treatment admit a little air to insure the evaporation of water from the axils of the leaves. Syringe early in the afternoon, and admit a little air for an hour or two afterwards. On days that syringing cannot be done more than once, or perhaps not at all, the pots, stage, in fact every available space in the house, should be made moist. Abundance of moisture in the atmosphere will promote a liberal development of the roots, which is certain to be followed by healthy vigorous leaf growth. Admit light freely to these plants, but carefully screen them from bright sunshine or they will suffer, the first indication of which is a yellow sickly appearance of the foliage. Watch for yellow thrips, which, if once established in the axils of the leaves, soon commit sad havoc. Eradication of this insect is perhaps more quickly and easily effected by dipping the plants in a weak solution of tobacco water. The best preventive is plenty of moisture in the atmosphere and a free use of the syringe. If scale becomes established on the under side of the leaves it is best removed with a sponge and a very weak solution of softsoap and water.

Phalenopsis.—Strong sunshine, even exposure to too much light, is ruinous to these plants during their period of growth. If shading of a temporary nature is employed every care is necessary. Ordinary tiffany will prove too light if the plants are suspended on the south side of a very light structure. Under these circumstances the glass should be lightly shaded as well with a little whiting or other material that can be used for the purpose. Maintain abundance of moisture about these plants. Yellow thrips is the greatest enemy the cultivator has to contend against. It is not safe to dip them for fear of injury to the centre of the plant or their large stiff fleshy leaves. With care the leaves can be sponged without injury with a weak solution of tobacco water, but this operation should only be entrusted to experienced persons.

Cypripedium.—In a warm, close, moist atmosphere these plants grow rapidly, in fact they make much greater progress than if subjected to cooler and more airy conditions. It is surprising how rapidly many of them increase in size by liberal treatment in this respect. Where division of any of the plants is needed no better time could be selected for the purpose, for they soon become established again. Many varieties will be in flower, or approaching that condition, and if cut up now they quickly break into growth and the formation of new roots will take place. No special time can be named for carrying out this work, but if the flowering season or just after be selected more satisfactory conditions result than during any other period.

Calanthes.—Up to this time the plants could be accommodated in almost any position, for they have taken up but little room. The rapid extension of their growth alters this materially. Stage room with us is limited, and therefore other expedients have to be resorted to from time to time. One of these is to bore three holes just beneath the rim of the pots in which the plants are growing, and then secure the wire to enable them being suspended from the roof. Grown under these conditions they certainly give a little more labour in watering, but the plants do equally as well as when grown on the stage in the ordinary way. We are under the impression that they do better, for sturdy well-ripened growth is insured. Give liberal supplies of water to those that are rooting freely. Water those not in this condition carefully, for too much water is ruinous in their early stages.

THE BEE-KEEPER.

PRACTICAL BEE-KEEPING.

No. 11.

MANY a bee-keeper has attempted to transfer a stock from a skep to a frame hive and failed: indeed, to attempt this transfer in spring is to court failure. This operation, unless it is performed at a certain period which Nature herself points out, is most hazardous, and is now very generally deprecated even by those who some years ago advocated the practice. With the introduction of comb foundation in its present form the necessity and wisdom of preserving combs cut from skeps, unless in exceptional circumstances, has gone; but there are still some bee-keepers who apparently desire to make such a transfer, not, perhaps, fully comprehending that with comb foundation and a little syrup or honey, comb may be produced with little more trouble than the transfer of the old comb occasions. At certain seasons of the year, however, it is perfectly safe to transfer any stock; and therefore for the benefit of those who desire to have instruction on the point I will endeavour to show how, and when, this operation may most successfully be performed, with the least danger of loss, by a comparatively unskilled bee-keeper.

The natural time for making such transfer is when the combs contain least brood. Now if a laying queen is removed it is well known that on the twenty first or twenty-second day after such removal nearly if not quite all the worker brood will have issued from the cells. The comb will contain drone brood, the perfect drone not issuing from the cell until the twenty-fourth day—often a day or two later; but in making a transfer of comb care will be taken to excise all drone cells, because the destruction of these drones will be no great evil, and consequently the manipulation may be performed without regarding their interests in the slightest degree. The twenty-first or twenty-second day after the swarm has gone forth is then the day upon which this operation

must be performed, but for its successful performance certain precautions must be taken.

In a suppositive case there are two skeps the combs of which we desire to transfer into frame hives. The method upon which we should proceed would be to allow a natural swarm to issue from each skep, to hive these swarms separately, unless they are very small, when it will be more profitable to unite them both in one hive. The laying queen has now, it will be perceived, left the hive, so that in twenty-one or twenty-two days after her departure all worker brood will have become perfect bees, and the comb is therefore ready for transfer; but about the ninth to the fourteenth day after the issue of the swarms each skep will probably send forth a second swarm—generally called a cast—and these must also be hived in separate hives, and each hive placed as close as possible to the stock from which the cast located in it has issued. If another cast also issues some three days after the first cast it must be united to the cast which issued from the same stock. On the twenty-second day all the bees must be driven out of the skeps into empty hives, and these hives be placed on the stands upon which the old skeps stood. Each skep may now be cut in two transversely between the two centre combs, and all combs worth transferring may be removed and placed in frames. In placing these combs in the frame care must be taken to pack them in tightly without, however, damaging or crushing the cells more than is absolutely necessary, and three pieces of tape must then be passed round the frame at suitable distances to retain the whole in position until the bees have themselves fastened the combs and made them secure. If a frame can only be partly filled a false bottom must be inserted to retain the comb in position. This false bottom rail and the tapes must be removed two days after the combs have been inserted in the hive. No drone comb should be transferred at all; it can be melted down for wax together with other fragments, of which there will no doubt be a considerable number. These frames of comb may now be inserted in the hives occupied by the casts, and in the evening the bees driven from the skeps may be united to these casts. Each cast will thus be strengthened by the addition of all the bees from the skep standing by its side, and will form a very valuable stock for another year. The two skeps will thus be increased to four stocks unless the swarms were very weak, and then by uniting them the number is reduced to three.

The points particularly to be observed in the performance of this operation are:—

1. To place the casts close to the stocks from which they respectively issued, the entrances facing the same way.
2. To see that each cast has a fertile queen.

Upon the first point no more need now be said, but it is most necessary to ascertain the presence of a fertile queen in the casts. The dangers to which queens are subjected before they can become mothers will be pointed out in a future paper, but the necessity for inspecting the combs and ascertaining the presence of eggs is paramount in those cases where it is suspected that the queen is lost. From seven to fourteen days after the issue of the queen from the cell eggs should be found in the combs, and if none can be discovered there is grave cause for suspicion that the queen has been lost or injured. If this is the case her place must be at once filled by the bee-keeper giving to the bees another queen to replace the one so lost or injured. The advantage—immediately upon hiving a cast—of giving it a young and fertile queen is manifest,

and if the operation of transferring is not to be carried out, a "stock" from which a swarm has issued may, to use an expression of a great bee-master, be "lifted" greatly by the gift of a fertile queen. There will then be no period when the cells will not contain eggs and larvae in various stages of growth. A man who has sufficient experience can generally detect a stock which is queenless without actual inspection, but if there is any reasonable doubt an inspection should at once be made.

It must not be forgotten that in a swarm the bees are aged and many of them will die in a very short time, while in a cast there is a far greater proportion of young bees which were unable at the time the swarm issued to leave the hive. Again, in the old stock from which both swarm and cast have issued nearly every bee will be young, and have therefore before it a longer life. The casts, especially when strengthened as I have pointed out, will therefore not improbably in many seasons overtake the swarms, and in all seasons will form the best stocks for another year.--FELIX.

NOTES ON BEES.

THE SEASON.

MAY, although cold and frosty at first, afterwards brought us genial summer weather. The 12th was the first fine day, a welcome change from the low temperature we have had throughout the spring. Notwithstanding the backward spring, and without feeding or other attention, my best stocks are ready for swarming or supering, but are not likely to swarm until honey is more plentiful and the weather warmer, as the bees are all located in full-sized hives, and supering will not be attempted until the honey season is at hand. Encouraging bees to fill supers with comb, either from sugar or from an early glut of honey, I do not approve of. Sugar-made combs are not nearly so delicate as those made at the plentiful season; then combs that bees have access to when honey is scarce get discoloured. The work for next month in the apiary will simply be watching and preparing hives for swarms, supers for honey, and stands for nuclei. Should the fine weather continue for a few days all anxiety as to bees suffering from want will have passed away. Of course my hives have room for surplus stores. The brood nest is not likely to be occupied with honey at this season. In earlier districts, supering should be begun and continued.

FRAME FOR SECTIONS.

While looking through my lumber loft lately, I found one of my earlier-made crates and frames filled with sections. As I consider it a good plan for marking sections on any hive, and has never been described before, for its simplicity will do so now. The frames may be of any size to suit the bee-keeper, and the crate to suit, but if necessary, of the roughest description, so that if used as packing cases to send sections to market, will not cost much. My own crates of this sort were simply similar in every respect to a division of the cheap hive previously described; in fact, one of them. The frames are made of hoop iron 1 inch broad bent so as to form a frame minus a top bar, having ears half an inch and one-sixteenth long. This length preserves a space of a quarter of an inch between crate and frame, sufficient to rest on the rebate of the crate, which is half an inch down, for the top bar when used as a body box, and five-sixteenths in. Little blocks of wood to preserve the distance between frames, and to raise the frame level to the top of the crate, are held by a screw nail passing through top of the frame and one of the tin clips. These are for the purpose of keeping the sections securely in their place, whether by transit, or when stationary on the hive. They are easily made, and very cheap. There are two lengths required, one to preserve the distance of frames at bottom angle, and the others for section only. They are made thus for sections $1\frac{3}{4}$ broad, the tin is cut into lengths $2\frac{3}{4}$ of an inch long by 1 inch broad. Pierce a hole with a chisel the breadth of the hooping in the centre lengthways, then fold and double up, turn up the ends, using a template of wood lined with iron to have them accurately made to suit the section of whatever breadth is required. Before the iron is bent as a frame slide the required number of these guides on to it, and in case the sections may not be used all of one size, or less than 2 lb. ones, put on an extra guide. The two required at the bottom angle are cut $2\frac{1}{4}$ inches long, and are bent the same way as the others, but on a wider template, so as they will preserve the proper distance, and with a pair of pliers turn in each corner of the guide, so that while

the outside preserves the proper distance of frame, the inner catches the section. The frame must have a hole punched at both upper ends underneath the ear, so that a small screw nail will pass through and hold the upper guide and block of wood. It will be observed that by using iron for frames little space is taken up, and by using frames of that sort the bees have access to as many sections in one compartment as the bee-keeper cares to give, while the bees having access round the ends of the frames, the sections are better filled. Then if the sections are sent to market in the frames the risk of the comb being broken is lessened. I am convinced that if bee-keepers would adopt this, or a similar plan, they would approve of it.

DOINGS OF THE PAST WEEK.

As the weather is now improved, a greater interest will be taken in bees and other rural pursuits. The past few fine days has been favourable for work, and I will tell what I have done. The articles upon the cheap hives have been the cause of numerous inquiries by letter and otherwise, some doubting, and others anxious for further information. So to make certain that there should be no mistake, I procured new material to make a hive from, the cost of which amounted to under 2s. 8d. The hive is in three divisions, with hinged alighting board, and hinged bottom to the ventilating floor and stand. The time I was occupied in making this, without the aid of machinery, rusty person and tools, was five hours, and a lady bee-keeper who saw it, said it was a superior and better-looking hive than some she had purchased lately at three times the cost this could be made for. I know for practical purposes a better hive cannot be had, and out of old boxes, when suitable, cheaper cannot be made. To complete the hive, I made an outside case out of old boxes, which are easily got here from factories. They are got for 9d. each, and there is sufficient timber to make four outside cases in each box. The iron, which costs about 6d. for each roof, is all that is wanting. The sides of the case are 2-3 inches high by 1-8 inch wide, and the wood runs vertically. It is jointed with plough-planes, and nailed to two square frames, one near the top and the other near the bottom. These frames are easily made, being simply four pieces of wood the proper length required, 2 inches broad by seven-eighths of an inch thick, nailed together at each corner, the one being simply laid upon the other. Two pieces of wood, either tapered or combed, form the gables, and are held together by two side pieces about $1\frac{1}{2}$ inch broad by half an inch thick, and the iron is held by four screw nails, one at each corner. This completes one of the cheapest and best protectors of a hive made; even with new material would cost less than 2s. The front of the case bears upon the alighting board, and the back is held up by a piece of hooping screwed to the stand at one end, and held at the other by a piece of hooping, double, below where the horizontal piece rests, and is supported by the piece above the screw, so that it cannot fall away sideways. This piece of hooping held fast at the one end only, can be turned out of the way when the case is removed. From the many inquiries I have regarding these cheap hives and covers is an assurance that such like are wanted, so trust the foregoing will assist those desiring them to attain their ends. But I have not revealed all yet. These boxes are thin, ranging from three-eighths to half an inch only in thickness. Are unsuitable for hive making, some will say. Not so; I overcome the difficulty by simply doubling the wood, and for an amateur hives are easier made this way than any other. The front and back inner pieces are cut exactly to the width the hive is required, while the inner and outer side ones are cut to the length of the top bar, or a sixteenth longer to give clearance. The front and back ones are cut to cover the ends of the side ones properly. Two tacks used in each frame preserve their distance, and are better than metal ends, which for such a hive will cost more than the hive itself.—A LANARKSHIRE BEE-KEEPER.



°° All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

LATE INQUIRIES.—It is necessary to again remind correspondents that letters arriving on **WEDNESDAY MORNING** cannot be answered in the "next issue," which is then far advanced for press.

Stable Sewage (A. A.).—Without an indication of the proportion of acid in the cesspool we are unable to give a categorical reply to your question. Pour some of the contents on grass, and wait a few days until the effect can be perceived; you will then know how to proceed with the remainder.

Sowing Dahlia Seed Outdoors (W. A. Walker).—Good Dahlia seed will germinate freely sown now in rather light soil in the open air, shaded with mats if needed for the retention of moisture in hot dry weather, removing the covering immediately the first seedling is visible. We should sow in rows 18 inches asunder, and thin out the seedlings to 6 inches apart, and good tubers would form by the autumn, from which, if preserved, strong flowering plants would issue next year. We have seen many single Dahlias raised in that way, and a few flower the same year in which the seed was sown; and though most of them may be acceptable for decorative purposes, only a comparative few can be expected to equal in merit existing named varieties.

Decorative Pelargoniums (E. F., Wimbledon).—Most of the sturdy floriferous plants sold in the London flower market in 5-inch pots were raised from cuttings inserted last year at this time or sooner. The reason there are no cuttings on your purchased plants to take is not difficult to explain. The growers simply took care of them before sending the plants to market, otherwise they might not have a sufficient number of equally good examples another year. If you examine the plants carefully you will probably be able to see that two or three cuttings have been taken from the lower part of the flowering stems, a few strong growths usually pushing from there when the plants are vigorous, and these sturdy flowerless shoots make the best cuttings and plants.

Planting Seakale (S. E. L.).—You have been rightly informed that portions of the roots of Seakale are planted in the London market gardens in May, and develop into strong crowns the same season for forcing towards the end of the year and onwards into the spring. But to accomplish that the root cuttings are made in the autumn and packed in sandy soil, then buds form at the ends during the winter, and are as prominent as sprouts are on Potatoes at the time of planting in May. If cuttings were taken from the roots now and planted, there would not be time for strong crowns to form by the autumn. Seakale roots and crowns raised from cuttings are, as a rule, much better than those raised from seed, hence this latter method is rarely followed by growers for "the trade."

Watercress (A Swedish Subscriber).—Your best plan, we think, and certainly the cheapest, of raising a stock of Watercress will be to procure a packet of seed, which is obtainable from all the prominent seedsmen in this country. Sow it thinly in drills 6 inches apart, and an inch deep or less, in rich free soil in a damp shaded position in the open air, keeping the ground constantly moist, and you will soon have plenty of strong plants for inserting along the margins of your stream, or all over it if the water is low enough and there is a layer of mud at the bottom for the reception of the roots. We have seen the best of Watercress grown in rich wet soil on the north side of a wall out of the reach of the sun except for an hour or two in the morning and evening. Your stream being a little shaded will not on that account render it unsuitable for growing Watercress, and we do not apprehend you will find any difficulty in accomplishing your object.

Pelargonium Leaves Scorched (S. G. H., Catford).—The condition of the plants is due to defective root-action—that is, the juices have escaped from them more quickly than moisture was imbibed, hence the scorching or drying-up of the foliage. The defect in root-action may have been caused by an excess of water saturating the soil, and causing the tips of the roots to decay; or, on the other hand, by an insufficiency, in which case they would shrivel. This, possibly, is the mistake that has been made, seeing that they remained fresh in the early part of the season. As to whether they needed repotting or not would depend on the state of the roots, but of this you may be certain—that when the roots work freely in good soil, and are judiciously watered, a genial atmosphere being at the same time maintained in the house, the health of the plants will be improved. It will be advisable to syringe them well on the afternoons of bright days, and admit air to the house very early in the morning.

Vine Leaves Scorched (W. B. Heathfield).—The condition of the leaves you have sent is not due to the attacks of any insects. The foliage is so thin and destitute of tissue that it has collapsed through the evaporation of moisture from it when the atmosphere of the house was very dry and the sun bright. Such leaves are almost certain to be injured on the first bright sunny day that follows a period of dull weather. Though we do not as a rule advocate the shading of Vines, it is better to throw a net on the glass or sprinkle it with whitewash applied with a syringe than allow the leaves to be injured like those before us. When fresh roots form in the better soil the leaves will be stouter and scorching cease under judicious management and ventilation. See our reply to a correspondent on page 387, and turn the information there given to your own account. We shall be glad to advise you at any time, and trust you will succeed in your undertaking.

Thinning Potato Growth (M. Elder).—We have no doubt at all that two or three strong stems from a set give a better yield than would thrice that number of weak growths. The latter produce a greater number of tubers, but small and "trashy" in comparison with the others. When

clusters of small stems have pushed from a set we have often thinned them with advantage to the crop, leaving only two or three of the stronger, drawing out the weaker when an inch or two above ground, or when hoeing between the rows the first time as soon as the plants were fairly visible. If you have doubts as to the usefulness of thinning, they will perhaps be dispelled by a well-conducted experiment. What we consider superfluous growths are as easily drawn out as if they were weeds; indeed, we consider them as such, as they deprive the soil of fertility without giving an adequate return. When thinning of the growths is resorted to it cannot be done too soon, late action not being nearly so effectual, and it may be of little or no service. The fault then rests with the individual, though it may not perhaps be easy to convince him of the fact.

Raising Violas and Pansies from Seed (E. T. H.).—There is not any great difference in the flowering; the Violas, if anything, flower earliest and continue longest. For spring flowering some of the best Pansies are Cliveden Purple, Cliveden Yellow, and Cliveden White. Of Violas which may be raised from seed are Lutea major, yellow; Perfection, purple; and Snowflake, white. To insure strong plants for planting in autumn the seed should be sown about the first week in July, not later, and not more than a fortnight earlier. The most suitable compost is good mellow loam, with a third of leaf soil or a fifth of well-decayed manure incorporated, and a little sand. The ordinary soil of gardens answers well, it being in good heart from liberal manuring. The seeds may be sown in pans or boxes and placed in a frame, keeping them moist, close, and shaded until the seedlings appear, when they should be kept near to the glass, and have all the light possible, with plenty of air, being gradually inured to the open air. If sown in the open they will do just as well, only make the surface fine and keep the soil moist. When large enough to handle they should be pricked off in beds of good soil in the open ground in rows 6 inches apart and 3 inches asunder in the rows, shading until established, affording supplies of water as useful to keep them growing freely. From these beds the plants may be moved with balls to their flowering quarters in autumn.

Chrysanthemums not Thriving (H. R. F.).—Curiously you give not the slightest intimation as to the quantity of cow manure you mixed with the loam, nor of its condition as to moisture. Mr. Molyneux has described in our columns and in his book the compost he uses. We suspect you have used too much manure in a too wet state, and rammed it down too firmly, making it very like a puddle, and in all probability you have given too much water since potting, thousands of plants being injured by amateurs by saturating soil before the roots of plants take possession of it; indeed, they never do take full possession of a mortar-like mixture. Mr. Molyneux does not use cow manure, as he considers it makes the soil too close; and it is quite certain yours is both too close and too wet, since water is "four or five minutes passing through it." It ought to pass through a 7-inch pot in less than one minute. You had better let the plants get so dry as to show faint signs of flagging, then with great care remove the unsuitable soil and pot them quickly in a mixture of three parts fibry loam with loose particles shaken out, one part of leaf mould, one of horse manure so far dried and decayed that it can be crushed into small particles, adding sufficient sand and crushed charcoal to form a porous mass. Let the mixture be just damp enough for compression, and it may then be pressed down firmly. The leaves of the plants may be kept fresh by syringing them occasionally and shading for a day or two, then give a good watering through a fine-rosed can. Afterwards avoid saturating the soil needlessly, still take care the plants do not suffer by want of water. You have made a mistake, then seek a remedy instead of asking for advice before, and your plants must suffer to some extent accordingly, though with good attention on the lines indicated they ought to recover.

Plant Pests in Soil (E. B. R.).—A careful examination has been made of the plants and soil, with the result that no larvae or grubs of flies have been discovered; but there are plenty of other pests, and you appear to have several enemies to contend with. There are certainly more mites present than could be there accidentally, the species being one of the genus *Rhizoglyphus*, allied to if not identical with the *Eucharis* mite. The difficulty of deciding upon the names of these *Rhizoglyphus* is considerable, requiring an investigation of all their stages. Then there is a beetle mite—an *Hoplopus*—larger, and presumably feeding upon the lesser mite, as is their habit. These, however, are in small number. Also we find a lively *Podura*, one of the brethren of the "springtails." The pots contained besides several examples of a millipede, *Julus pulchellus*, in a juvenile stage. This, we apprehend is the creature which has puzzled you by its mode of rapidly vanishing, and has no doubt done harm, and is possibly the chief enemy in your case. In large numbers it is highly destructive to bulbs and the fleshy roots of various other plants. We have known a collection of 5000 English and Spanish Irises ruined by it, and more than twice that number of Hyacinths and other bulbs. It is more abundant in soil rich in humus or decaying vegetable matter and retentive of moisture than in soil of a drier nature. We should try the effect of burning the soil used in potting, or heating it sufficiently for destroying all insect life. This will not injure the soil, but improve it, as you may find by experiment; of course it must be moistened before being used, and for this purpose you will find hot water better than cold, also practically free from animalculæ. Burning the soil intended for Asparagus would also certainly improve it, and if you have not tried that method of preparation by all means do so. A very heavy liming we should expect would be of service to the garden generally, using it fresh at the rate of 150 bushels per acre. Gas lime applied to vacant land in the autumn at the rate of 40 bushels per acre is also worth trying.

Names of Fruits.—The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and beyond that number cannot be preserved. —1, Flower of Kent. 5, Buff-coat. 6, Downton Pippin. 7, Duchess' Favourite. The others not known. The sender of the Apples will recognise this reply. No letter accompanied the fruit. Non-compliance with our request on that point leads to confusion.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers.

Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (R. L. E. G.).—A variety of *Beaucarnea recurvata*. (A Constant Subscriber).—The flower is apparently that of a *Pyrus*, but being tightly packed in dry cotton wool it was quite unrecognisable. (Thistleworth).—*Pyrus spectabilis*.

COVENT GARDEN MARKET.—MAY 25TH.

No alteration. Business steady.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, $\frac{1}{2}$ sieve ..	2	0 to 5	0	Oranges, per 100 ..	6 0 to 12 0
" Nova Scotia and ..				Peaches, dozen ..	15 0 to 11 0
Canada, barrel 10	0	13	0	Pears, dozen ..	1 0 to 2 0
Cherries, $\frac{1}{2}$ sieve ..	0	0	0	Pine Apples, English,	
Osbs, 100 lbs. ..	50	0	55	per lb. ..	1 6 to 2 0
Figs, dozen ..	6	0	8	Plums, $\frac{1}{2}$ sieve ..	0 0 to 0 0
Grapes, per lb. ..	2	6	4	St. Michael Plums, each	2 0 to 5 0
Lemons, case ..	10	0	15	0	0
Melon, each ..	3	0	0	Strawberries, per lb. ..	3 0 to 6 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichoker, dozen ..	1	0 to 2	0	Lettuce, dozen ..	1 0 to 1 6
Asparagus, bundle ..	1	6	4	Mushrooms, punnet ..	0 6 to 1 0
Beans, Kidney, per lb. ..	1	3	0	Mustard and Cress, punt.	0 2 to 0 6
Beet, Red, dozen ..	1	0	2	Onions, bunch ..	0 3 to 0 6
Broccoli, bundle ..	0	0	0	Parsley, dozen bunches	2 0 to 3 0
Brussels Sprouts, $\frac{1}{2}$ sieve	0	0	0	Peas, per lb. ..	1 0 to 0 0
Cabbage, dozen ..	1	6	0	Potatoes, per cwt. ..	4 0 to 5 0
Capsicums, per 100 ..	1	6	2	" Kidney, per cwt.	4 0 to 0 0
Carrots, bunch ..	0	4	0	Rhubarb, bundle ..	0 2 to 0 0
Caulliflowers, dozen ..	3	0	4	Salsify, bundle ..	1 0 to 1 6
Celery, bundle ..	1	6	2	Scorzonera, bundle ..	1 6 to 0 0
Coleworts, doz. bunches	2	0	4	Seakale, basket ..	1 6 to 0 0
Cucumbers, each ..	0	4	0	Shallots, per lb. ..	0 3 to 0 0
Endive, dozen ..	1	0	2	Spinach, bushel ..	3 0 to 4 0
Herbs, bunch ..	0	2	0	Tomatoes, per lb. ..	1 0 to 1 6
Leeks, bunch ..	0	3	0	Turnips, bunch ..	0 4 to 0 6

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, dozen ..	9	0 to 18	0	Fuchsia, dozen ..	6 0 to 9 0
Arbor vitae (golden) dozen	6	0	9	Genista, dozen ..	6 6 to 9 0
" (common), dozen ..	6	0	12	Geranium (Ivy), dozen	4 0 to 6 0
Azalea, dozen ..	13	0	30	Hydrangea, dozen ..	9 0 to 12 0
Begonias, dozen ..	4	0	9	Lilies Valley, dozen ..	9 0 to 18 0
Calceolaria, dozen ..	6	0	12	Lobelia, dozen ..	4 0 to 6 0
Cineraria, dozen ..	4	0	8	Marguerite Daisy, dozen	6 0 to 12 0
Dracena terminalis, doz.	30	0	60	Mignonette, dozen ..	4 0 to 9 0
" viridis, dozen ..	13	0	24	Musk, dozen ..	3 0 to 6 0
Erica, various, dozen ..	13	0	42	Myrtles, dozen ..	6 0 to 12 0
Euonymus, in var., dozen	6	0	18	Palms, in var., each ..	2 6 to 21 0
Evergreens, in var., dozen	6	0	24	Pelargoniums, dozen ..	6 0 to 15 0
Ferns, in variety, dozen	4	0	18	" scarlet, dozen ..	4 0 to 9 0
Ficus elastica, each ..	1	6	7	Solanums, dozen ..	0 0 to 0 0
Foliage Plants, var., each	2	0	10	Spiraea, dozen ..	6 0 to 12 0

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Abutilons, 12 bunches ..	2	0 to 4	0	Marguerites, 12 bunches	2 0 to 6 0
Anemones, 12 bunches ..	2	0	4	Mignonette, 12 bunches	4 0 to 6 0
Arum Lilies, 12 blooms ..	3	0	6	Myosotis, 12 bunches ..	3 0 to 6 0
Azalea, 12 sprays ..	0	6	1	Narciss, 12 bunches ..	2 0 to 6 0
Bluebells, 12 bunches ..	1	0	1	" White, English, bch.	0 0 to 0 0
Bouvardias, bunch ..	0	6	1	Pelargoniums, 12 trusses	0 9 to 1 0
Camellias, blooms ..	1	0	3	" scarlet, 12 trusses	0 4 to 0 6
Carnations, 12 blooms ..	1	0	3	Poinsettia, 12 blooms ..	0 0 to 0 0
" 12 bunches ..	0	0	0	Primroses, 12 bunches ..	0 6 to 0 8
Cornflower, 12 bunches ..	0	0	0	Primula (single), bunch ..	0 0 to 0 6
Cowslips, 12 bunches ..	0	6	1	" (double), bunch ..	0 9 to 1 0
Cyclamen, 12 blooms ..	0	4	0	Polyanthus, 12 bunches ..	2 0 to 4 0
Daffodils, var., doz. bchs	2	0	6	Ranunculus, 12 bunches	3 0 to 6 0
Encharis, dozen ..	4	0	6	Roses, 12 bunches ..	0 0 to 0 0
Gardenias, 12 blooms ..	1	6	3	" (Indoor), dozen ..	0 9 to 1 6
Hyacinths, Roman, 12				" Tea, dozen ..	1 6 to 3 0
epays ..	0	0	0	" red dozen ..	2 0 to 4 0
Lapageria, white, 12 blms.	0	0	0	Stephanotis, 12 sprays ..	2 0 to 4 0
Lilium longiflorum, 12				Trachelium, 12 bunches	1 0 to 2 0
blooms ..	4	0	6	Tuberose, 12 blooms ..	0 9 to 1 0
Lilac (white), French,				Tulips, dozen blooms ..	0 2 to 0 4
bunch ..	4	0	7	Violets, 12 bunches ..	0 4 to 0 6
Lily of Valley, 12 epays	0	9	1	" Czar, French, bunch	0 0 to 0 0



OUR CEREAL CROPS.

WHEAT.

THE general tendency of the article in the "Quarterly Review," from which extracts were given in our last paper, is to show the probability of a reduction in the quantity of imported Wheat from all parts of the world to this country. Let us see how it bears the test of results up to the present time, or say two months after the article

was written. The latest returns to which we have access were published on May 17th, and they show that "the imports of Wheat from Russia continue to fall off. They have fallen from 1,381,980 cwt. in the first four months of last year to 1,046,170 cwt. this year; and it will be recollected that last year showed a decrease upon the year before. There is likewise a considerable decrease in the imports from British India. In the first four months of last year they amounted to 3,523,795 cwt., while in the first four months of the present year they amounted to 2,460,560 cwt.; but it will be seen that even now the imports from British India are more than twice as large in quantity as those from Russia. The imports from the United States, however, have increased enormously, especially those from the Atlantic ports, which have risen from 2,082,242 cwt. to 8,252,106 cwt. in the first four months of this year. The imports from the Atlantic ports of the United States have thus been four times as large in the first four months this year as in the corresponding period of last year; but the increase of the Pacific coast is only from 3,021,080 cwt. to 4,109,898 cwt."

It must not be forgotten that these returns bear only upon corn in store from last harvest, and so can have little if any influence upon the future. Yet the fact of the very considerable increase in the quantity of Wheat imported from America should impress upon the farmers of this country the truth of the assertion that any great rise in the price of Wheat here would tend to flood the market with foreign grain. If only we are therefore content to look forward to a maximum price of 40s. to 45s. per quarter, and strive to improve the condition of the land and the general practice of cultivation so as to bring about results at least equal to an average yield of 40 bushels an acre, we shall then, and only then, be able to compete successfully with other countries. If we are content with such conditions we may yet do well, but it is impossible to speak with any degree of certainty while matters are in such a state of transition as they are at the present time. Even if the wish, to which expression was once given, of "a short crop and a bloody war" were again to be realised, the resultant high price would only be a thing of the moment, which would inevitably be counterbalanced by a subsequent depression. Such fitful changes should hardly be taken into account in a dispassionate consideration of matter of such vital importance.

Let us rather strive to keep to lines which common sense and dear-bought experience show us to be safe. Be it our endeavour to ascertain what improvement is possible in our practice, and let us take care to combine economy with energy, and not run into wasteful extravagance in our efforts to achieve extraordinary results. On the day of writing this paper we have been making a critical inspection of farm crops on the home farm. Among other fields we went across one of white Wheat about 17 acres in extent. Two-thirds of this field had a dressing of farmyard manure, ploughed in before the Wheat was sown last autumn. The remainder had none, nor had it any manure at all till a dressing of chemical manure was applied in March. The effect of the two kinds of manure is already to be seen in a manner that is clear and unmistakeable. The part dressed with chemical manure has a growth which is so strong and of such a dark green hue as to be quite distinct from and altogether superior in appearance to that which had the farmyard manure. Experience of the mixture of chemical manure used enables us to feel confident that the final result will be much in favour of it.

It may naturally be asked why, if we knew the chemical manure to be so superior, we did not use it in preference to farmyard manure which we have so often condemned. We may explain that the field in question is part of some 80 acres added to the home farm last autumn. The farmyard manure had to be taken in the valuation, and we gladly took advantage of the opportunity to again test the value of the two sorts of manure. We need hardly say that if results answer our expectations chemical manure will only be used for Wheat next year.

WORK ON THE HOME FARM.

Charlock, Thistles, Twitch, and Docks are the enemies with which we have been closely engaged in destroying since our last note was written. Of these pests Charlock is certainly the most difficult to eradicate, or rather to confine within reasonable bounds, for it is impossible to destroy all the plants of it that are now formed among corn upon farms where it has become thoroughly established. Horse corn hoes are a great help just now, especially among Barley sowing, as they do to get a lot of hoeing done in a short time; the horses are thus turned to full account, and fewer men are required for the work. The Mangold plants are now visible along the rows, and the horse hoes will soon be at work upon the weeds between the rows. We prefer the patent expansion hoe for this work; it is a light handy yet strong implement, which by a few turns of the handle contracts to a width of a foot or expands to full 3 feet. The grass is so backward in growth that we may feel certain of having all the Mangolds singled and well hoed before the haymaking begins. Complaints may be heard of the backward condition of the grass, and a short crop of hay is spoken of as a certainty. We cannot agree with this, for there is a full strong growth upon all the fertile pasture under our care. True it is that growth is somewhat backward, but it is not so backward as to cause us any feeling of alarm or doubt about the final result. Once more have we proof that crops on land that is well drained and thoroughly fertile suffer very little from unkind seasons.

Sheep-folding goes on upon one or other of our farms throughout the year. We have now three flocks in folds upon Rye Grass, Red Clover, and Trefoil. The home farm ewe flock has just been taken off Sainfoin to go quickly over a field of Red Clover, which we wish to save seed from later on. They will go from the Clover upon another field of Sainfoin, where we hope to finish the preparation of the lambs for market. Wherever the sheep go in folds they impart fertility to the land, and the next crop is certain to be a vigorous one. No better Wheat, Barley, or Oats have we than where the sheep were folded. Perhaps our best field of Barley is a late-sown crop, where sheep were folded upon Swedes and White Turnips. We can also point to a grand piece of pasture now laid in for hay, the vigorous growth of which is entirely owing to the sheep.

LAND CULTIVATION IN THE HIGHLANDS.

ALL who have grappled with the Crofter question, whether in the Highlands of Scotland or Ireland, have failed to deal with the very essence of the difficulty—viz., the utter exhaustion of the land, brought about by a vicious system of cultivation.

It is found that in the Lowlands, both of England and Scotland, it is necessary to pursue a careful rotation of cropping, and to apply large quantities of artificial manures, in addition to foreign feeding stuffs, to keep up the fertility of the land, and many are of opinion that all these agencies are not more than sufficient to maintain the land in a by no means high state of fertility. If this is so—and I expect few will gain-say it—what must be said of the Irish and Highland crofts?

Before the introduction of the Potato into the Highlands, some 120 years ago, cereals, consisting of a very light inferior Oat and Bere, a sort of Barley, were the only crops grown. These did not exhaust the soil to the same extent that the Potato does. It is a very exhausting crop for the land, and the rotation at this date on small crofts is, corn one year, and Potatoes the next. The only manures available are the excreta of the cattle they house during the winter, and as these are fed on straw of inferior quality, the value of the manure is not great, and is still further reduced by being thrown outdoors, where any manurial virtue it may have contained is washed out of it by the heavy rains. This manure, and occasionally seaweed, is all the land gets to maintain its capacity for yielding food for those who live on it, and such as it is, it is applied in the most unskilful manner, generally to the Potato crop, on the following method:—The Potatoes are, as a rule, grown on what are well named "lazy beds." The land is marked off into beds about 5 feet wide, with an alley about 2 feet wide between. This land may be stubble or grass, yet it is not dug up in any way; the dung or seaweed, as the case may be, is spread on the surface of the land, and the Potato sets are placed on it about 9 inches apart in the row across the bed, and 18 inches between the rows. The soil in the alley is then dug up and placed over the sets to cover them. In course of time they come above ground. When the growths are 6 inches high the remaining soil—when there is any in the alley—is put between the rows to earth up the plants. This is all that is done till the crop is fit to take up, and while I admit that I have half a century ago seen good crops of

Potatoes grown in this way, I am quite certain that a little more skill and labour would nearly have doubled the crop. Had the dung been forked or dug slightly into the ground, and a sprinkling of a manure I shall refer to ere I finish been spread on the surface or over the sets, and then let them be covered from the alley, the crop would be of much greater value, and the land would produce a greatly better crop of corn the next season than by adhering to the lazy bed system.

Then as to the sort of Potatoes they plant, it is well known that there are great differences in quality and productiveness of Potatoes, and this is a matter in which the proprietor could, by himself or his agent, give good advice to his crofters, and even arrange to supply them with the most suitable sorts, as well as changes of seed. I would strongly advise that they should plant a portion of some approved early variety to come into use as soon as their old ones are done. I have seen the crofters lifting Potatoes for consumption in July that were not fit for food, nor would they be till September; this was a great waste, in addition to their being unwholesome. Yet there are many varieties of Potatoes that are excellent at that date. That the land the great mass of the crofters and the Irish small farmers hold is quite exhausted of all its manurial elements few practical farmers, who at the same time have scientific knowledge, will deny, and the problem is how to restore it. This is a thoroughly practical difficulty, and nothing short of the most practical methods will meet it.

What I suggest is, that every proprietor, by himself or by his agent, should purchase, at wholesale rates, manures, such as are of a sustaining character, and after mixing them, sell them to his tenants at the prices he gave for them. Bones, ground finely, should be the chief element, to which may be added coprolites, some dissolved and some ground, and where the climate is not very wet a small portion of sulphate of ammonia. The seaweed will supply potash. Every crofter paying £8 rent should apply to his land 5 cwt. of this manure annually, and persistently, and it should not cost more than £1 a year. Attention to such details would no doubt cause the landlord some trouble, to himself or his agent; but better face that than the disaster which must follow on the present system.

There are parts of the Hebrides where the crofts are so small that the people cannot subsist on them unless they can find some employment, such as fishing; and where that is so it would be kindness to aid and induce them to emigrate to some of our best colonies to such an extent as to leave those that remained with crofts worth £8 to £10 a year. On these, with proper attention to manuring and cultivation, they would be able to subsist. It would not be an easy matter to convince an average Highlander that he is ignorant of the first principles of cultivation; but something might be done for the rising generation in the schools by means of simple text books in the Gaelic language. In this way both the girls and boys might have seeds sown in their minds that would bear fruit in after life. The girls might be taught the simplest elements of domestic economy, and especially of cookery, of which their knowledge is of the most rudimentary description. The action being taken on the report of the Royal Commission at the present moment is all in the right direction, and by men who evidently understand what they are about, and mean to do justice on both sides. So far good, if the settlements they are making could be followed up by some method such as I have indicated for restoring the fertility of the soil.

I feel certain that Dr. Aitken, the able chemist of the Highland and Agricultural Society of Scotland, would give a formula for such a manure as would be required to any proprietor who may apply to him. I am of opinion that a great source of manure for the land in the Highlands is lost sight of in the waste of fish offal that takes place at the great fishing stations. This, and much else that would benefit the crofters, can only be effected by a kindly co-operation between them and their landlords, and those who attempt to sow strife between them are the friends of neither party.—WM. THOMSON, *Clovenfords*.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain	
1887. May.		Barometer at 32° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature		
			Dry.	Wet.			Max.	Min.	In sun.		On grass
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
Snnday	15	30.330	51.7	45.2	N.W.	49.0	64.2	36.7	109.4	31.9	—
Monday	16	30.186	53.9	48.9	N.E.	50.2	63.2	45.0	107.2	49.6	—
Tuesday	17	30.087	48.4	41.1	N. E.	50.4	56.9	45.2	79.3	40.4	0.018
Wednesday...	18	29.878	54.2	51.9	S.W.	50.2	69.4	48.2	88.6	42.6	0.021
Thnrday	19	29.879	49.1	47.3	S.W.	51.2	62.3	43.6	88.8	35.8	0.281
Friday	20	29.366	48.1	41.3	S.W.	50.3	53.3	43.9	102.2	42.8	0.026
Saturday	21	29.763	48.7	43.8	W.	49.2	54.2	36.8	102.9	33.2	0.089
		29.924	50.6	46.8		49.9	59.3	42.8	96.9	38.2	0.437

REMARKS.

15th.—Bright and fine.
16th.—Fine, with some sunshine.
17th.—Overcast morning; fair afternoon.
18th.—Dull and showery till about 3 P.M., then fine.
19th.—Damp and showery till mid-day, then fine; heavy rain at 5.30; wet evening; S.W. gale at night.
20th.—Stormy and cold, with showers of rain and hail; clear evening.
21st.—Sunshine and showers; a little snow and hail in the morning.
A showery week, with three cold nights and one slight frost on grass. Temperature again below the average.—G. J. SYMONS.



COMING EVENTS

2	TH	Linnean Society at 8 P.M. Reading Show.
3	F	
4	S	
5	SUN	TRINITY SUNDAY.
6	M	
7	TU	
8	W	

TULIPS.

AROUND London this season the Tulips which are now largely employed for bedding purposes have been unusually late, but they have compensated for the tardy appearance of their flowers by the brilliancy of their colours, which have seemed more noticeable perhaps on account of the partial absence of other flowers.

One disadvantage respecting this lateness is that the beds have been at their best at a time when, under ordinary circumstances, they would have been cleared ready for their summer occupants, and these in consequence will be correspondingly late. Such difficulties as these, however, are unavoidable in our uncertain climate, and we can only submit to them with as good a grace as possible. Certainly we cannot dispense with Tulips in the spring flower garden, especially in cities or their suburbs, and it is only regrettable that more attention is not given to them for such purposes and places. Hyacinths look dull and heavy in comparison with the rich, varied Tulips, and by the exercise of a little thought and taste some delightful effects may be produced. In bedding out Tulips there is, however, too great a tendency to go upon conventional lines, and year after year we see the beds devoted to varieties of one colour or in alternate lines, and very rarely is any attempt made to introduce other plants, though many that flower in spring might be used for margins to such beds with excellent results. Those with white flowers, like the early Iberis or Arabis, would be best suited for the purpose in broad bands, or if the Tulips rose from a carpet of similar plants the effect would be good. This season the displays in Kew Gardens, Hyde Park, Regent's Park, and the Temple Gardens have been very beautiful, and what might be almost described as an experiment at Kew has given much satisfaction. The broad walk there with the beds on each side is especially suited for effects of this description, and viewed from either end the masses of brilliant colours have been seen to excellent advantage. In the City itself of course there are all the difficulties of smoke and dust to contend with, but the success achieved in gardens like those attached to the Temple proves what can be accomplished even under such circumstances.

Beautiful as the bedding varieties of Tulips are, they are incomparably surpassed by the superb forms that have been under the special care of the florists, and these unfortunately have of late years been much neglected in the south of England. In the north there are still some enthusiasts who grow collections of the choice named varieties, and anyone who has seen one of the remarkable shows held by the National Tulip Society in Manchester would readily understand why these plants have so long

retained a place in the favour of florists. Upon one occasion when visiting Manchester at the end of May we undertook a pilgrimage to one of the most noted collections in the north, that of Mr. S. Barlow, Stakehill House, Middleton, and though the day was hot and the road uncomfortably dusty there was ample to repay for the trouble when the destination was reached. Mr. Barlow is widely famed for his Polyanthus, but he has an extraordinary collection of Tulips, comprising a great number of varieties in all the sections, and he is skilled in all the minute differences between the forms of Bizarres, Byblømens, &c.

Some idea of the collection may be gained from the fact that over 8000 flowering bulbs were grown every year, together with at least 12,000 "half bulbs," "non-bloomers," and offsets, the varieties represented being about 230. All these were in beds nearly 4 feet in width and 20 yards long, from which the original soil had been removed to the depth of 2 feet. A drainage of rough material was then placed in, and over this the compost, that chiefly consists of excellent mellow fibrous turf, of which there is a large quantity stored up in one of the sheds. The soil is raised 6 to 8 inches above the level, being supported with boards of the same width placed round the edges. In these beds the bulbs are planted about 7 inches apart every way, the lines being taken across the beds. The position is moderately sheltered on all sides, some of the beds being afforded special protection by means of hoops, over which a light covering is placed at night and in unfavourable weather. One has a permanent framework with one side boarded up and the upper part glazed, and in this bed a few flowers were showing colour, but they were not much in advance of those that had been hooped over. The regularity with which the varieties of different heights had been arranged was excellent, and when the flowers are all fully expanded the effect is such as would not be readily forgotten.

Tulips in the north no doubt will be later this year than usual, but the annual Show is to be held next Saturday (June 4th), and for a week from that time they will be in full beauty. It is regrettable that we never see an exhibition of this kind in the south of England, and though on one or two occasions in recent years some attempt has been made to draw public attention to the plants by exhibiting collections of blooms at South Kensington they have not produced much effect, and the majority seem to be satisfied with crowded pots of bulbs seen at the early spring shows or with the bedding varieties previously referred to. It is, in fact, a very difficult matter to re-awaken an enthusiasm as regards plants that have once been favourites but have been pushed on one side to make room for later introductions to popular favour.

Some lovers of hardy plants have taken the species or types of Tulip in hand with good results, as they are very interesting, and some are very useful from a decorative point of view. *Tulipa Gesneriana*, the principal parent of the florists' Tulips, is a handsome plant, even in what would perhaps be termed its unimproved state, with large glaucous leaves and beautifully symmetrical scarlet flowers. Then, too, there is *Tulipa suaveolens*, another beautiful species which appears to have been largely concerned in the production of the bedding Tulips. Crossed with *T. Gesneriana* it has also added to the diversity of form and colour in the florists' group, and has conveyed the valuable qualities of fragrance and earliness. To *T. Gesneriana* no doubt we owe most of the brilliant scarlet and orange

shades, such as we obtain in the useful Keisers Kroon, while the softer rose, purple, or crimson shades are chiefly traceable to *T. suaveolens*. The flower of the latter is of rather different shape also, rather shorter, less pointed, and more cupped than in *T. Gesneriana*. *T. retroflexa* has rich yellow flowers, with petals recurving at the tips; but our native species, *T. sylvestris*, the only Tulip found wild in Britain, is by no means a despicable flower, and is of a very clear bright yellow. Scattered through a border of herbaceous plants this has a pretty effect during May. *T. fragrans*, also with yellow flowers, is another pretty species. *T. fulgens* and *T. elegans*, both with rich crimson flowers, but the latter having black stamens and slightly recurving petals, are somewhat dwarfer than the others named, are of excellent colour. *T. Greigi* is extremely distinct from the others, very dwarf and remarkable for its beautifully marked foliage streaked and dotted with maroon or almost black markings; its rich scarlet flowers with black blotches at the base of the petals are also handsome. By crossing this with some of the other varieties it might be possible to obtain a distinct race of Tulips of dwarf habit and with ornamental foliage. *T. viridiflora* and *T. cornuta* are two of the curiosities of the family, the former with irregularly formed green or greenish-yellow flowers, and the latter with long, narrow, strangely twisted petals. From one or both of these the Parrot Tulips have sprung, and all who are interested in the peculiarities of floral form find something to their taste in these.

These are only a few of the most distinct types of Tulips; there are numbers of others with varying attractions that might be added to collections of hardy plants, and all alike thrive best in a rich but well-drained somewhat sandy soil.—L. CASTLE.

OUTSIDE VINE BORDERS.

EARLY Grapes are always welcome. However good the varieties may be they do not improve by being bottled for four or five months. Nevertheless, they are important, and must be grown in order to maintain an unbroken supply. For the production of early Grapes, the advantages of keeping the roots where they are certain to be favoured with warmth and good drainage cannot be over-estimated. Some may still cling to the old method of trying to heat an outside border with fermenting material, but they are the minority, and have lagged behind the times unless circumstances have compelled adherence to a practice that is both unnatural and laborious. Advancement has been made in producing a supply of early Grapes during the last decade, and much of this success is due to smaller houses, combined with shallow inside borders.

Late Grapes may be grown equally as well in outside as in inside borders; but the object is to keep them in the most satisfactory condition after they are grown. To insure perfect bunches and a minimum of mouldy berries before they are bottled, inside borders, where the roots are under control, are necessary. Borders that are both inside and out are no better than outside ones in the accomplishment of this end. When Vines are given a preference of borders an undue portion of the roots go out, however good the treatment inside may be. The Grapes after they are well ripened keep well or badly in proportion to the quantity of roots they have outside.

I am aware that the manner in which the fruit keeps is largely due to suitable atmospheric conditions and ventilating; but decay cannot be averted irrespective of root moisture. The keeping of Grapes when the roots are in outside borders are influenced by the rainfall of the district. It may be argued by the advocates of outside borders that they can be thatched or protected with boards, old sashes, corrugated zinc, and so on to throw off heavy rains. There are objections to these methods, one being that of appearance, which is of no small moment in many gardening establishments. Such contrivances show at once that outside borders are not the best for late Grapes. The roots of Vines might not be injured in the least in an outside border left to Nature any more than the roots of an Apple or Pear tree, but the quality of the fruit and

its keeping properties are influenced in a very marked degree. Outside Vine borders, high and dry, may perhaps answer for late Grapes in some localities. I have not, however, been fortunate enough to practise in one of these districts. If too much water falls upon outside borders—and I take it that such is the case, or protection would be dispensed with—why go to the trouble and expense of constructing borders conjointly with those inside for the roots of the Vines to ramble in? Obviously where inside borders cannot be made outside ones must be resorted to, and the coverings must be used to carry off superfluous water from the roots.

We are slowly recognising the fact that large deep borders are a great mistake, for they are never filled with roots; but the prevalent notion that Vines need borders nearly or fully 3 feet deep and 12 to 18 feet wide out and inside will be a long time before it is generally dispelled. If all who believe in large deep borders could only dig up Vines, preserving every root, they would be surprised at the small amount in comparison to the quantity of soil given them to feed in. They would see the sufficiency at once of smaller borders, which would, I, think, result in a general adoption of inside borders for late Grapes. I have cleared out and reduced the size of inside and outside borders that contained soil enough to last a house of Vines for a hundred years if it had been applied to them as they required it for food. This the quantity of soil would have been ample to have remade the borders at every interval of twenty years during that period. What utter waste of labour and material, resulting entirely from a mistaken knowledge of the requirements of Vines and the root run to which they should be allowed access.

The condemnation of outside borders for late Grapes through the destruction of the fruit by the Vines taking up too much water, opens up in some respects the theory known as "osmosis." I thoroughly believe the theory, if such it may be called, for those who disbelieve it can soon put it into practice and destroy a greater quantity of Grapes in a given time by the application of an excess of moisture inside the house than they could by pouring water on the border to be taken up by the roots, or even by rainfall itself. By the process of "osmosis" the berries crack, by the other they do not—they practically rot. After they have cracked they mould—that is, the cracked portion, but if the atmosphere was suddenly changed from a moist to a dry one the cracked portion would not mould but dry up. "Osmosis" is arrested at once, the cells become stopped; in fact, the cracked portion has the appearance of being callused over, and the berries remain good afterwards as long as suitable atmospheric conditions are maintained. This season some berries of Black Hamburgs that hung over a tank cracked early in November; the tank was emptied, and the berries remained perfectly good until they were cut at Christmas, and they were equally as sweet as the uncracked ones; but when the water is taken up by the roots from the border to an excess a dry internal temperature will not avert the rotting of the berries.

I am not writing disparagingly of outside borders for Vines on which the fruit has to hang for two or three months after it is ripe without having carefully noted the perfect keeping of the fruit under the conditions of inside and outside borders. The falling of the foliage of Vines in outside borders has been unduly prolonged by the heavy autumn rains, and the fruit of Vines with roots outside have not kept well. A house of Black Hamburgs (roots inside) that we commenced using in November were not all cut until after Christmas, and we lost very few berries. They kept well, except being shrivelled slightly towards the last; the flavour was very good, and therefore was not objectionable. The fruit of Vines in a late house (roots inside and out) kept badly, though well ripened and early. Now, in this house there are a few young Vines growing amongst the old ones that have been raised by layering, and are carrying a few bunches for the first time, and which I do not think have roots outside. The fruit on these have kept well, better than any in the house. The fruit of a young Vine of Alnwick Seedling under similar conditions has also kept well; it cannot have many, if any, roots outside. I remember the roots of this viney being turned out, and driven out eleven years ago, and as the roots have increased in quantity outside the fruit has kept worse in proportion. As I have said, the keeping of the fruit, all other things being satisfactory, depends entirely upon the autumn rainfall, for when we have experienced dry or moderately dry autumns the fruit has kept well, or the reverse if it has been a wet one. In a small span-roofed house for some years we had late Grapes (borders inside), and we scarcely ever lost a berry. If I remember rightly, a small bunch was sent to the *Journal* office ten or eleven years ago from the same house. The fruit of one Vine in the house never kept well; it was at the warmest end, and always produced the finest fruit. This was attributed to the tank at that end, but this was emptied with no better results. The real cause was dis-

covered when the Vines were thrown out. It had not a single root in the border, but had gone out straight through the wall, across a narrow walk, and into a bed of Lily of the Valley. The roots evidently took up too much water, which resulted in the fruit failing to keep well. This was the conclusion arrived at when the position of its roots were discovered, and which has been verified again and again by the behaviour of other Vines with their roots outside.

Opinions formed principally by observation when practising in various parts of the country have certainly been confirmed on this subject by results for some years past. It is to be hoped that the evils pointed out, that may take place during wet autumns, may be the means of preventing intending planters placing the roots of late Vines in outside borders, to be troubled afterwards with the Grapes keeping badly, for this could be avoided by keeping them inside. Where appearances are no object I do not wish to infer that borders cannot be protected from becoming too wet, and thus influence the keeping of the fruit; but when both inside and outside borders can be made I do not perceive the slightest necessity for making both. If it is a good practice to have the roots of early Vines inside, which is beyond dispute, it is equally judicious to have these for the production of late fruit in similar positions.

Outside borders are not altogether condemned, for they are equally as good for midseason varieties as those inside, for they certainly give less trouble in watering and reduce anxiety on this point. For amateurs I believe outside borders to be infinitely better than inside ones, for the Vines are not so liable to suffer by injudicious watering. If the borders were not over-drained and thoroughly mulched in spring, and then left to Nature, better produce would in very many instances be the result than what is the case at present.

In many instances where Vine borders have to be covered during the spring or summer with Daisies, Mignonette, and other flowering plants they are much better in than out, even if the Vines are intended to yield midsummer fruit. Any method of forking the surface of the border, however light, will drive the roots down, which alone is disadvantageous to the Vines. To carry out such operations a mere pricking of the surface is not sufficient. Numerous fibres are destroyed, and the roots leave the surface and descend deeper and deeper beyond the reach of useful but too frequently used implements.—WM. BARDNEY.

TRANSPLANTING PEAS.

FOR numerous reasons I think this system is not resorted to as often as it might be, not merely for early Peas but at other times. In my own case, the wall adjoining my experimental vegetable plot is much resorted to by crows and jackdaws, except during the nest-building and hatching season, when they only visit occasionally. Now, as if for pure mischief, they never let a Pea bud come through the ground without pulling it up if exposed and leaving them otherwise untouched on the surface. They remain perched on the wall then until I arrive, as if, with inquisitive eyes, to see how I like their exploits. In the case of new and valuable varieties like the above, "Pea guards," or guards of some kind, must be made use of, or vexation and disappointment result. Hearing so much of Carter's Anticipation last year in London, I resolved to have a few lines of it, but the ground I wished to have it in was until yesterday occupied with spring Broccoli. Not wishing to be too late in getting Anticipation in, I sowed several boxes of it in rich loam in advance, the seeds about 1 inch asunder. This is a variety like Stratagem, that grows dwarf and compact, and turns out to be most suitable for transplanting. They lift from the box readily, and when transplanted in the prepared manured lines and directly covered in they sustain no check. Of course it is well known that neither crows, jackdaws, sparrows, mice, or any other vermin touch them at this stage; and when the drills are thus made newly for them no slugs are near to injure them, and this is important in old gardens. It is a good time to sow the above and the main crop varieties.—W. J. MURPHY, *Clonmel*.

NOTES AT KEW.

THE prolonged dull cold weather has greatly retarded the development of outdoor attractions in gardens, but there is now a partial recovery. The trees are clothed with foliage, and hardy flowers are rapidly increasing in numbers. If a fine afternoon can be selected at this time of year for a visit to Kew, any amateur or professional horticulturist will find abundance to admire, and it will be strange indeed if he fail to depart without adding somewhat to his floricultural or botanical knowledge. Those who are specially interested in Kew and who are most familiar with its progress will know how much the resources of the establishment have been developed in recent years, its practical importance has steadily increased, and its educational value proportionately improved. Not only is the marvellous collection of plants continually extended by the addition

of novelties or rarities, but the public have an opportunity of judging of the horticultural value of the plants, for they are well grown, and unfortunately the latter is a condition that is occasionally overlooked or disregarded in botanic gardens. No practical man can visit Kew without perceiving that the horticultural element is as carefully studied as the botanical or scientific object of the garden. This has tended greatly to the extended popularity of the establishment, and the effort to render science (or knowledge) popular has certainly been successfully accomplished.

An afternoon would scarcely suffice for even a cursory examination of all the various departments, and on the occasion of our visit we found so much to interest and admire in the old Botanic Garden that the pleasure grounds, arboretum, and winter garden had to be reserved for another day. The greenhouse, always popular with the general visitor, has for a long period been maintained in a very attractive condition, and just now it is extremely bright. The method of arrangement adopted is a good one, and consists in grouping together on the side stages a number of similar plants in pots, such as *Heliotrope*, *Hydrangeas*, *Zonal* and other *Pelargoniums*, *Eupatoriums*, *Primula japonica*, *Cinerarias*, *Calceolarias*, *Azaleas*, *Begonias*, *Hyacinths*, *Aphelexis*, *Celsia cretica*, &c., the spaces between being filled with miscellaneous plants. One result of this system is that the heterogeneous effect too common in such houses is avoided, each colour is fully brought out, and the respective characters of the plants are developed. Upon the stages in the wings of the house hardwooded plants are the chief features, very interesting groups being formed of the following:—*Bauera rubioides*, of graceful slender growth, and numerous small pink flowers; *Boronia elatior*, rich rose, and *B. polygalifolia*, pink; *Chorozemas flavum*, varium elegans, and *Soulangeanum*, varying from yellow to rich orange and crimson, the extremes being sometimes contrasted in the same flower, owing to the wings and standard being diversely coloured; *Pimelea ferruginea*, bright pink dense heads of flowers, and small elliptical closely set leaves; *Agapetes buxifolia*, a handsome plant with bright red tubular flowers in the axils of the leaves on long branches—this plant is not quite as compact in habit as might be desired, but its brilliantly coloured flowers render it worthy of a place in any greenhouse; *Leschenaultia biloba major*, one of the most brilliant blue-flowered indoor plants we have, it is much more graceful in habit and more easily grown than the scarlet *Leschenaultia formosa*, and the colour is delightfully clear and rich; *Darwinia tulipifera*, with its crimson tinged drooping flowers, is a well-known exhibition plant, but is also very useful in a small state for conservatories or greenhouses; *Adenandra umbellata*, with large white flowers veined dark crimson at the base of each of the five petals; and the sweet-scented *A. fragrans* are pretty plants. *Cleonema album*, with innumerable diminutive white flowers, forms graceful little bushes; *Vaccinium myrsinites* has small white bell-like flowers; *Dracophyllum gracile*, *Eriostemon*, and the useful free *Polygala Dalmaisia* are familiar to all; *Oxylobium ellipticum* has bright yellow pea-shaped flowers, a brilliant red spot at the base of each standard rendering it very distinct; *Darwinia fuchsoides* and *Grevillea rosmarinifolia* are also flowering freely, with the sulphur yellow *Gnidia carinata* and the mauve-coloured *Agathosma rugosa*, and a variety named *oblonga* with white flowers. A plant of *Lotus Bertholetianus* (or *Peliorhynchus*) suspended in a basket over this stage is very notable, the growths slender and drooping, with linear glaucous leaves and flowers like a *Kennedya*, bright orange red, all the divisions acute, but the standard narrow and sharply recurved, giving a peculiar appearance.

Other plants especially well grown and notable were the following:—*Acroelinium roseum* in 48-pots, bearing numbers of its bright rose-coloured durable flower heads; *Eupatorium ferrugineum*, dark stems, large rhomboid leaves, and heads of white flowers; *Primula japonica*, very effective in 48 and 32-size pots, three to seven scapes each, with three or four expanded whorls of deep crimson flowers, and more to come. In one part of the house a group of these is arranged with *Veronica Hulkeana*, and the effect is most pleasing, the pale mauve flowers and slender straggling growths of the latter contrasting with the crimson flowers of the former. *Begonia Knowsleyana* is a useful variety, as it produces its flowers in the greatest profusion, white or slightly tinged with rose, the ovary very strongly winged and rosy crimson. *Cænostoma hirsutum* forms neat bushy little plants bearing numerous starry mauve or whitish flowers. *Rosa spinosissima*, the Scotch Rose, is not often seen in greenhouses, but at Kew several plants in 48-size pots have a very pleasing appearance, the flowers creamy white, being slightly cupped and fragrant. *Aphelexis macrantha*, *purpurea*, *Brucei*, *rosea*, and *spectabilis* in 60 and 48-size pots form a capital group, the plants all healthy and with thirty to forty flower heads each, differing in their depth of colour, but all bright. *Celsia cretica* in 32-size pots is extremely showy, 2½ to 3 feet high, covered with rich yellow flowers 2 inches in diameter. *Heuchera sanguinea*, an

herbaceous plant, is seldom seen in pots for decorative purposes, but it is distinct, graceful, and bright, the leaves slightly heart-shaped, lobed, the bright rosy red bell-shaped flowers in slender panicles. *Acacia armata* in 48 and 32-size pots makes admirable little specimens with spike-like growths of fragrant yellow flowers. *Mignonette*, *Schizanthus*, *Gardenia florida*, the rich scarlet *Scutellaria Mocciniana*, and many other plants are employed in a similar manner.

In the centre beds are *Camellias* (planted out), large *Azaleas*, *Chrysanthemum frutescens*, *Roses*, *Richardias*, and *Eupatoriums*, while the roof is draped with *Fuchsias*, *Kennedys*, and *Tacsonias*. From the preceding notes some idea can be formed of the numerous and varied plants contained in this house, but its aspect is being frequently changed, and few casual visitors are aware what a large reserve stock is required to maintain it in good condition throughout the year. In private gardens employers do not always give this matter due consideration, for it is impossible to keep such a house continually gay without an adequate supply of pits and frames in which to bring the plants forward.

The Orchid houses contain a more interesting display than we have seen at Kew for a long time, while the herbaceous ground and rockery are full of beautiful plants. Both these departments are, however, too important to be dismissed in a hurried note, and further reference to them must be reserved for another letter.—VISITOR.

LETTUCES ON DRY SOILS.

WE all know that a garden having a hungry, sandy, or gravelly soil, not well supplied with manure either in a liquid or solid state, is not the one to expect good Lettuce from in a dry season. A hot sun speedily withdraws all the moisture that is within its reach, unless it be assisted to a liberal extent by manure in some shape or other; and the drain there is on that substance renders it necessary to look well to the best means of supplying it in just such quantities as may be wanted, and also at the precise time when it is called for.

To have really good, well blanched, and crisp Lettuce on dry soils, in a dry, hot season, be sure and sow only the newest seed that can be had, and let it be sown where it has to remain, thinning the plants carefully and commencing watering early—say by the time they are about the size for planting. Continue this every two or three days, as the weather and other circumstances may seem to require, taking care to increase the quantity or quality of liquid manure as the plant advances in size, and towards the last, daily waterings will not be too often if the weather be exceedingly dry; of course, using soft water if possible, or, if not to be had, let the other water stand some hours in the sun before using, for cold spring water is at variance with the well-being of all plants.

Give a good soaking when you do water, for in this case there is no danger of giving too much on ground so naturally drained; but when liquid manure is given it would be better to give no more than would just moisten the soil as deep as the roots are; but in all this watering some care must be taken to prevent it from evaporating too quickly. Leaf mould is neat and good for mulching, and can also with advantage be dug into the ground afterwards; but if that cannot be had, something else must be substituted. Short grass will also do, or, in fact, anything that will check evaporation; the object being to keep the roots of the plants in a uniform moist, warm state; for it is a mistake to expect a good result where there is much difference between the top and bottom temperatures of the plants.

Besides the care necessary, as above, in encouraging a healthy growth, there is much advantage in having the best variety to cultivate. The Bath Cos is still as good as any; but excellence depends on the care with which the variety has been kept from contact with others while seeding. Other local circumstances also affect it; but it is not a bad practice to sow several kinds at once, and mark the result. Most likely there will be a difference in their qualifications for resisting the temptation to run to seed. Sowing where they are to remain, as above, being perhaps the most important point to attend to; and if it could be done on the north side of a wall so much the better. The shade of trees is not so good, for they often rob the plants by their roots as well as injure them by the shade they give them. Above all, use liquid manure plentifully, and the result will hardly fail to be favourable.

It would be as well to remark here, that in the sowing of this crop in dry weather recourse must be had to the watering-pot as well before the seed is put in as at any other time. A good watering of the ground before sowing, and shading after, will often coax the plants up with less detriment to the ground than when repeated waterings are obliged to be made after that operation is done.—R. J. L.

PROPAGATING CHOICE PERENNIALS.

IN the early spring months a great number of the choicer hardy perennials may be propagated with success, and also with advantage to the operator, since plants propagated at this time have ample opportunities of making good progress during the summer ensuing and becoming well established before the arrival of winter; therefore the earlier the start the better for the plants in the end. Taking hardy perennials as a whole, the major portion of them are

most easily propagated either by division or by cuttings or seeds. It is not, however, my intention to speak particularly of these, but rather briefly to point out some of the few that are difficult to increase.

LYCHNIS VESPERTINA PLENA.—This is not only one of the very finest perennials in cultivation, but also the most difficult to increase; indeed, it is not to be accomplished by ordinary means. It is still very scarce in collections of hardy plants, and some of the leading lists do not contain it at all. When well grown and fully established it attains a height of 3 feet, and forms a bush quite as much through. Imagine such a one, then, laden with pure white double and fragrant flowers from the middle or end of June till the arrival of frosts, and the reader will have a fair illustration of what this fine perennial is. I have had its flowers nearly 2 inches across, and as such it is most charming and always admired. I have never known it to produce seeds, and the progress to be made by division may be imagined when I state that the plant invariably forms several inches of straight fleshy stem, which is inclined to be woody with age, immediately below the tuft of radical leaves, which renders division almost impossible. It is attempted sometimes, but almost always with miserable results; the really only safe method is from cuttings, which may be had in the following manner. The plants are now starting naturally into growth in the open border, and these if lifted and placed into a warm greenhouse or frame will soon produce cuttings of the right stamp. Those which experience has taught me to be of the right sort are formed about the base of the plants, and should be taken with a heel attached when they are about 3 inches long or thereabouts. Insert them in sandy soil in well drained pots, plunge in gentle bottom heat, and keep them close and shaded, the majority will form roots in about a month, when they may be removed to cooler quarters to harden, and ultimately be potted singly. By introducing this plant into heat it will be seen that it soon throws up a flower stem; and here I would warn those who have no experience of it to have no cuttings which are formed upon the flower stem, not because they will not root, for they will, and almost as readily as the best procurable, but the disappointing part is that they seldom make plants, and never good ones, simply because there are no breaks at their base—they are, in fact, axillary growths containing flower buds. Altogether it is a plant requiring both time and patience to succeed in increasing it to any extent, and having done so it is worth looking after. After years of experience and watching I have long since concluded that this is the only satisfactory way of propagating this handsome border perennial.

EVERLASTING PEAS.—For another example, where propagation is not very simple, I would refer to the several forms of Everlasting Pea, *Lathyrus latifolius* and varieties, which, although quite old inhabitants of our gardens, are now far from common. Few flowers are more useful in a cut state than the true old white form, which is very difficult to obtain, since so many inferior ones are sold for it which have been raised from seed; and though a fair number come comparatively true from seed, the best means of keeping up the true stock is by cuttings, and for these there is no better month than May, and no more fitting place to root them in than a dung frame, I inserted the first a day or two since, and shall continue doing so while any are to be had. The only fit cuttings are the breaks which nestle closely at the base of the plants. Strip them off with a heel attached, and without trimming or further preparation insert them in sandy soil in well drained pots. In three weeks they form roots, and may be potted. Never introduce stock plants of this into artificial heat. They soon become drawn and weakly, the results of which are too well known. Never fail to secure the first batch of cuttings as soon as they are ready—say when not more than 4 inches long. I attach some importance to this particular, since experience has proved that if one or two of the strongest shoots are allowed to take the lead undisturbed they not only soon become useless themselves for propagating purposes, but render the remainder weak and unfit for severing from the parent plant.—J. H. E.

AN OLD LECTURE ON POTATOES.

By MR. R. FENN.

(Continued from page 69.)

WHEN the green tops of Potatoes appear above ground, which they do regularly under good preparation and treatment, hand-scarify the ground between the rows, and as this is proceeded with cover those young tops which show themselves completely with soil to protect them from the frost. They are not perfectly safe from the latter, and indeed I never allow mine their free liberty to the light of day till the second week in May. By constantly attending to this earthing over their heads the slightest chance of the frost killing them is prevented, and the moulding is thus by degrees completed when this process is generally about to be begun. Besides, the early moulding plan, as I will call it, offers

another great advantage. To secure a vigorous growth for the tubers, roots should as necessarily be formed before their leaves as should those of a Hyacinth in a glass or pot to insure a handsome flower. By repeatedly moulting Potatoes in their infancy the formation of young Potatoes is accelerated, and by the second week in May, when the tops are allowed their liberty, the tubers are also claiming their share from the roots, which checks the extravagance of the branch; and the result is a reciprocal action. I have never had grander tops since I adopted this plan, and my crops have been increased abundantly, with a decidedly more even appearance. In finishing the mouldings make them present broad shoulders, with 18 inches of surface, slightly inclining towards the Potato stems, thus producing moisture and a large body of soil for the tubers to form in near at home, for by the ridiculous pointed ridge, this is rendered impossible.

Should our Potatoes produce blossoms it will be a sure sign of health; but as Potatoes are not grown for the sake of either their flowers or their berries, every particle of matter which is consumed by the plant in producing them is a dead loss to the grower; for flowers must exist and feed on something, and that something is what would collect in the tubers. If the production of flowers is a loss the mischief is infinitely increased when the flowers are succeeded by the berries. All Nature expends its best energies in the production of seed after its kind, and it is probable that if the flowers abstract one ounce of organisable matter the seed consumes twice as much. Suppose a Potato plant to bear three bunches of berries, each bunch weighing a quarter of a pound, that is three-quarters of a pound per plant, an acre of ground may be said to carry from 15 to 20,000 plants, which proves a loss of about 4 tons of tubers for that quantity of ground, which might have been prevented by picking off the bloom. I destroy all Potato blossoms more sedulously than I would weeds, and by doing so before the blooms expand, the flower stalks being then brittle, it is much more easily performed.

The only preventive for the murrain I can recommend is to use diligence according to the measure I have pointed out, and so, instead of the disease proving itself a curse, it is made to become a blessing to man through instructing him to secure two crops from his ground in the place of one. That the Potato disease which continues to manifest itself, like most other epidemical visitations affecting the animal and vegetable creation, proceeds from peculiar dispositions of the atmosphere, have been and still remains an established theory with myself. For when I revolve in my mind all those various features, such as blight, mildew and smut, which infest the cereals and vegetables, or fevers with other infections at different periods attacking the human and animal forms, I should certainly wonder if the Potato remained an exception to the rule, though I never could arrive at the conclusion of those people who doom the tuber to inevitable destruction in consequence.

What my experience leads me to advise is that whenever the haulm of Potatoes becomes stricken badly with disease then is the time to lift the crop. For when we observe the fruit upon a suddenly withered branch, if any person were to tell us it would ripen and become benefited by remaining there we should laugh at him, and not without reason. Now all fruit and vegetables, whether they grow in or above the soil, depend for their perfection upon healthy leaves; and if from any unnatural check or blight their leaves become stricken and disabled, then the sooner the fruit is gathered, or the vegetable taken up, the better. And I know, if the Potatoes are allowed to remain in the soil long after the haulm is dead from disease, that upon then taking them up one-half will be either quite unfitted for food or approaching to that state. Let the sound Potatoes remain where you can observe them, to sort out the diseased ones as they appear. This is as I consider the most economical and common-sense view of the matter. I will not urge the question whether a Potato crop should be taken out of the soil or not; if it goes through its ripening process and carry a hale and healthy foliage to the allotted time of Nature that must depend upon individual option; for my own part, even in this desirable state of things, I should lift them on the first dry opportunity.

I well know that many persons, for want of convenience, must generally take to the pitting practice in storing Potatoes, and I can confidently say I lost more through that off-hand system before the disease came than I have ever done since. The way I manage now is this: I never store them till after they have undergone the preparatory sorting course I recommended; I then place them in a dark cellar on trays made from old doors or slabs, with boards about 12 inches deep nailed to their ends and sides. I thus keep the tubers immediately under my eye to watch their movements and keep their shoots from growing at any time. I find they keep perfectly this way, even into the autumn of the following year.

If Potatoes must be stored in heaps fix on a dry, rather sloping situation; allow the pit or tump to be fashioned lengthways, with a breadth of 4 feet at the bottom, and gradually in packing narrow it to a ridge. Form a trench around by digging out sufficient soil to case the Potatoes with, 6 inches thick at least, and finish off by thatching with fern or straw, to prevent danger from wet or frost. Allow the caves to hang well down into the trench, which will lead off the drip water and leave the Potatoes high and dry. Never place straw next to the tubers, as it soon rots there and imparts a bad flavour to them. If a shed or other house is at command, and sufficiently closed in to keep out all frosts and wet, give a preference and store the Potatoes there. And wherever they are, if you can procure either dry mould, sand, or cinder ashes, placing either of these an inch or two in thickness alternately with layers of Potatoes, all I can say is, you may then, when they reach

a high price at market late in the spring, depend upon having sound first-rate Potatoes to sell or otherwise, which will well repay for this extra care and labour.

RANUNCULUS CORTUSÆFOLIUS.

At the meeting of the Royal Horticultural Society on May 24th this year, E. G. Loder, Esq., Floore, Weedon, Northamptonshire, exhibited a specimen of *Ranunculus cortusæfolius* (fig. 75), which was one of the most remarkable plants shown on that occasion, and is also one of the most showy Buttercups yet brought into notice. The plant in question had somewhat heart-shaped leaves, 6 inches and more in diameter, slightly lobed, and with a toothed margin; the leaves on the



Fig. 75.—*Ranunculus cortusæfolius*.

stem being stalkless, with three lanceolate divisions. The flowers are large, fully 2 inches in diameter, of a bright golden yellow colour, are very numerous, and are borne in a paniculate head $2\frac{1}{2}$ feet high.

R. cortusæfolius, which has been designated as "unquestionably the handsomest of all the Buttercups yet known to botanists," is a native of Madeira and the Canary Islands, being confined, it is said, to one locality in Madeira—viz., Ribeira Frio. It has been known for a considerable time, and has been described by various botanists under the names *R. Teneriffæ*, *R. grandifolius*, and *R. heucheraefolius*; but that given at the head of this note is the accepted title, under which it was well figured in the "Botanical Magazine," January, 1852, and described by the ex-curator of the Royal Gardens, Kew, Mr. John Smith. It is, however, there said to be hardy, though frame protection is advised during the winter. At Floore it has not been found to be hardy, and

Mr. G. Goldsmith, the gardener, sends the following hint on its cultivation.

"To grow this *Ranunculus* successfully it must be kept in a cold airy pit or frame. When it starts in spring it should be potted firmly in a compost of half good stiff loam, a fourth part leaf soil and sand, the remainder horse droppings from an old Mushroom bed. When the pots are full of roots weak liquid manure should be given to encourage it to throw up strong flower spikes and assist it to make strong roots for another season. To increase the stock it should be divided as soon as it commences growing, as I have not yet succeeded in raising seedlings. It continues in bloom from six to eight weeks."

HEATHFIELD HOUSE, LOW FELL, GATESHEAD.

HEATHFIELD HOUSE, the residence of E. Lange, Esq., is within two miles of Newcastle, and trams run every fifteen minutes, so that any readers of the Journal who may visit the Exhibition at Newcastle will find this well worth visiting, as it takes little time. The gardener, Mr. A. Methven, is a well-known local exhibitor at the Durham, Northumberland, and Newcastle-on-Tyne horticultural shows. The spirited proprietor is an ardent patron of horticulture, and within the last two years he has had a range of glass houses erected at a cost of £10,000. From the mansion this has a most imposing appearance. The altitude is high, averaging nearly 20 feet each house, and as the houses are built on a steep decline there are three terraces with stone steps, and the bases of the houses are all ashlar-work, which makes the whole range most complete from an architectural point of view.

The first house is devoted to Cattleyas. Its size is 25 feet by 12 feet. The plants have all been recently imported, and, to use a common expression, are growing like weeds. The house is heated by a flue 16 inches by 14 inches, bricked over 4 feet high, with side ventilators. On the top of the flue is a foot of rubble; this is cemented, and 2 inches depth of water is always supplied. Such is the command of the heating power here that if the fire goes out for ten hours the temperature does not vary much. We observed *Dendrobium Falconeri* well set with bloom, *Odontoglossum citrosum* (two spikes, thirteen flowers each), and *Laelia purpurata* with a very strong spike. The next is an *Odontoglossum* house, 25 feet by 12 feet, where the choice *Masdevallia Harryana* and *Reichenbachiana*, plants of *Odontoglossum gloriosum*, with two spikes of thirteen flowers each, in a 6-inch pot, were examples of cultural skill. In this house is a hybrid *Dendrobium* named now *Heathfieldiana*, which Mr. Methven was successful in obtaining. Mr. Cookson of Oakfield Hall sent a flower of this to Reichenbach, who named it *Cooksoni* by mistake. This has now been altered, and the whole stock is in the hands of Messrs. Sander & Co., St. Albans.

The next is a small Cattleya house 20 feet by 12 feet. *C. Mossiae* and *C. Mendeli* are both flourishing. One of the varieties is very distinct from *C. Mossiae*. The labellum is a rich dark crimson, broader, and the yellow in the thorax more distinct, while the sepals are also large and expand more freely than the usual type of *C. Mossiae*. In this house eleven Cattleya plants were in bloom, showing one or two spikes, of imported plants, two years old, in 6 and 8-inch pots, containing seven to eight flowers each. These plants in the course of a few years will be fine specimens. Adjoining is a capacious fernery, 40 feet by 25 feet. The rockwork is huge blocks of sandstone joined together artistically. *Dicksonia antarctica*, *Cyathea dealbata*, and *Alsophila exelsa* are all flourishing. The rockwork is covered with *Ficus repens* and Irish Ivy. The next is a stove containing fine plants of *Euphaphantia villosa* 1 foot high, *Kentia Fosteriana*, and a rare *Sabal*; *Phoenix sylvestris*, *Zamia Lehmanni*, and *Chamerops humilis* throwing up flower spikes. There is also a fine old plant of *Sobralia macrantha* 5 to 6 feet in diameter, in addition to a number of *Anthurium Schertzerianum* throwing unusually large spathes.

From there the fruit houses are entered. The first is a Peach house of the same dimensions as the fernery. The apex is 20 feet high. The front is planted with *Stirling Castle* and *Royal George*, the back *Impératrice* and *Violette Hâtive Nectarines*. In the middle the trees are planted right angles to the front row, and it is no doubt interesting to state that they are doing very well, and show what can be done in a large house by an experienced cultivator. Many well-known gardeners scarcely expected Mr. A. Methven's plan to be successful; however, of that there remains no doubt. Although the houses are very lofty the trees in the centre are covered from the bottom to the top with fruit. The trees at right angles to the front row are *Rivers' Early Peach*, *Pine Apple Nectarine*, *Stirling Castle*, and *Royal George*; the latter three of those are standards, the other two dwarfs. Most fruit-growers would be pleased to see this unique arrangement and the advantages derived from it. Of the vineries the first is a late house, comprising *Gros Colman*, *Black Prince*, *Lady Downe's*, *Mrs. Pince*, *Raisin de Calabre*, *Alnwick Seedling*, and *Alicante*. The Vines were in a healthy condition. Mr. Methven employs cow manure extensively, 10 to 12 inches deep—in fact, as much as 6 tons to a house 30 feet by 25 feet. The borders are nearly all inside. The bunches are large, averaging from 3 to 4 lbs. each, and the foliage in a perfectly healthy state.

Between this house and the Muscat house is an octagon conservatory or Camellia house, in which were large plants in exhibition form of *Erica Exquisite*, *Reginae*, and *Marnockiana* 5 to 6 feet high, also a fine piece of *Cordylina indivisa*. The Muscat house contains Vines in full

bearing. The Vines are *Bowood Muscat*, *Muscat of Alexandria*, and *Canon Hall*. The crop is heavy, and the altitude being 20 feet the rods have a run of 25 feet, so the return will be very large. A Black *Hamburgh* house is in keeping with the rest. The first Grapes will be ready in June, as the proprietor does not care for them too early. The last house is a stove, which was full with plants of *Eucharis amazonica* 5 to 6 feet across, in large pots, with a 12-inch pot turned upside down to insure drainage. Specimen *Crotons* were strong and in exhibition form. This extensive range is one of the largest that has in recent years been erected in the north, containing as it does 71,280 square feet.

The grounds are not very large, but are well laid out, and are in keeping with the rest of the establishment. There is a very fine rockery made to represent an alpine scene—a miniature of *Mont Blanc*. The base is planted with Austrian and Corsican Pines, the height is 50 feet, the whole representing a rugged eminence. A winding path leads to the top, where the visitor has an enchanting view of the valley of the Tyne, embracing as it does all the well-known industries which have made the Tyne famous in commerce, as well as a large view over the whole of North Durham. This charming spot was designed by the brother of the owner, J. Lange, Esq. A new flower garden has also been made, which is to be bedded in the carpet style. The whole garden in a month or two will be well worth seeing, better than it is at present; but it is of such easy access it was well that it should now be described to the readers of the Journal; so that in visiting the Jubilee Exhibition at Newcastle they may have the opportunity of visiting it. From the owner and his gardener they will receive a hearty welcome.—BERNARD COWAN.

DECORATIVE DAHLIAS.

NOTHING can be gained by hastening Dahlias on faster than weather permits. Too early propagation and subsequent "drawing up" of the plants is still far too common. Dahlias are much like Potatoes, as they do best planted when the ground and atmosphere are sufficiently warm to cause them to grow without check. Planted now, there is no fear but they will find their way downwards and upwards very rapidly. Dahlias have suffered greatly through having become a florist's flower. People see large blooms at flower shows and read articles, hoping to attain to something like the same success, but generally in vain, as Dahlias require a much greater amount of attention than most gardeners can find time to bestow upon them; but all the same the idea has become fixed that Dahlias must be propagated in a certain way, staked up with a fixed precision, and treated generally on strictly defined lines. It may be supposed from the heading of this paper that a certain class of Dahlias only is intended to come within its scope. But that is not so, as all sections of Dahlias are good as decorative plants when properly grown, or perhaps it would be better to say when grown for that purpose. A mass of well grown doubles, either show or fancy varieties, cannot be excelled in late autumn, whether by any other Dahlias generally grown or by any other plant. They are unfortunately late in the season in reaching their finest condition; but they are well worth waiting for. Singles are much quicker in making a show, but at their best they are not so fine and massive as doubles. In our northern parts the Cactus forms require to be grown from old roots, not cuttings, not only in order to induce them to flower quicker, but indeed to flower at all, as they are so much more floriferous. Indeed, with all sections it is well to plant a few from old tubers, as they keep so much better during winter than cutting plants do.

There is one point to be attended to, no matter for what purpose the plants are wanted, and that is, that the ground must be well manured and deeply worked. At least 6 inches in thickness of dung should be added annually, and where it can be spared half a spadeful of old Mushroom bed well mixed with the soil where each plant is to be put out is of the greatest help; but further than this we do not require to follow in the way of the florist. Single Dahlias massed in beds or planted in lines may be placed 3 feet apart by 2 feet, and instead of tying the plants to sticks they must be pegged down twice. Where plenty of cut flower is in demand there will be little chance of the plants becoming too thick, but if that become imminent then cut out freely, so that there may be no crowding. All seed pods must be removed from singles. By these means the risk of damage by cold autumn rains is greatly lessened. Single flowers have been condemned for cutting purposes on account of their being so short-lived; but if quite young flowers are selected, and especially if a branch is cut at a time, instead of a full bloom, which most likely has been fertilised by bees, then they will be found to stand cutting very well.

Double sorts do well pegged down also, but they require to be supported by short stout sticks towards autumn, so that the heavy heads of bloom do not carry off branches during windy weather. It is also very necessary to thin out the shoots, so that those left have plenty of room; but it is not necessary to thin out flower buds, as these are most useful for decorating vases along with large flowers. The Cactus forms, especially *Juanzeii* and *Mr. Tait*, are quite

indispensable as cut flowers. *Alba floribunda* and *Mont Blanc* are also good whites and well worth growing, as they may be used for the most particular purposes. Glare of the Garden is not so good, and some of the others are not worth growing at all. I do not peg down varieties of the habit of growth of the first named. They are staked and allowed great freedom of growth, but every flower is removed as they open, and many of the buds, so that they do not on that account become crowded. Pompon sorts are best pegged, but as a rule we do not care for these, as they are the least valuable section either for cutting or for effect as plants.

I am sure if anyone who has been working on the florist flower system with Dahlias will give an easier method a trial, they will be delighted with the extravagant profusiveness of most Dahlias, especially if wanted as decorative objects in large gardens. The simple method of pegging the plants instead of supporting with stakes will speak for itself.—B.

AN ALPINE RAMBLE.

I AM not going to conduct my readers to the Jungfrau, "Le Jardin," or the passes of the Col de Balme or Tête Noir, but to something much nearer home, where an epitome is to be seen of the Alpine flora to be studied under circumstances not quite so picturesque, but considerably safer and more leisurely. I want them to read what I have to say about the Alpine rockery of Messrs. Paul & Son at Broxbourne near Cheshunt. I have seen a good many of the best rockeries in the kingdom, and I am inclined to think that this will soon take rank as amongst the most interesting. It lacks the picturesqueness of Messrs. Backhouse, and is not so extensive as Mr. Loder's at Floore; but in its completeness it will not be behind either, for Mr. Paul has endeavoured to meet the wants of its denizens in every possible way.

When I say that the road to the station runs just at the back of the ground, and the road being lined with Elms, and the ground itself being quite level, it will be acknowledged, I think, that it required no little determination and perseverance to construct a rockery in such a situation. Generally when this is done the maker is content to use the stone of the district, or that most available for him, and simply to make the soil agreeable to the plants used. But Mr. Paul has not done this. He has so arranged it that the plants of each particular formation is accommodated with rocks suitable to them as well as with soil. Thus there is a piece of limestone, another of granite, a chalk down, a piece of sandstone formation, and a good piece of bog, across which there is a sort of bridge, to cross which the *Via Mala* at Chamounix is but child's play. I managed that without help, but I had to be helped over this, but then sixteen years have passed since I crossed the *Mer de Glace*, and that makes some difference. Water is laid on to the top of the highest ridge of these alpine regions, and seems to make a moist ravine in which many things flourish admirably, while the bog can be flooded at any time, and in portions as the plants require it; thus everything is arranged so as to secure success.

There is one great advantage in growing alpine and herbaceous plants, that there is always something to see. You go to a Rose nursery. Ah! Sir, they are past their best, or, as you are so frequently told in France, *abimé*. You go to the most celebrated Orchid growers in July, and you see just here and there a flower, but the great proportion of the plants exhibit nothing but leaves; but go when you will to an herbaceous garden and there is always something to interest you, and in these early months of the year there is very much in the alpine garden of very deep interest, while many fine herbaceous plants are in flower. What a grand mass the *Doronicum* makes, and especially that fine variety, which, whatever its botanical name, we, who knew and valued Harpur Crewe, would prefer that it should be known by his name. But let us not ramble too far. As one looks over the bog there are fine masses of many of the King-cups (*Caltha*). Especially noticeable is *Caltha palustris plena*, the largest form of all, but I question if it will be so great a favourite as the single varieties. Then there is *C. leptosepala*, a white flowered species. Here again is *Orchis foliosa*, evidently at home, while fine columns of *Cypripedium spectabile* are pushing up. Then that somewhat difficult plant, *Cypripedium acaule*, seemed as if it would accommodate itself to its home; grand clumps of *Osmunda* were just showing their crowns, while *Primula rosea* was evidently at home. Many of this genus delight in such moist places, and, indeed, can hardly be prevailed upon to make themselves comfortable elsewhere. In such places, too, the *Menziesia* delights, and its beautiful flowers are borne in great profusion.

On other parts of the rockery some very choice things were to be seen. There is a remarkable *Phlox*, *P. stellaris*, which hangs down in long growths, but not yet in flower, which is described as very handsome, and is very distinct in its growth, and likely to be very useful for planting on the top of a rockery and letting it hang down over the ledges. There is one important point in growing alpine to which Mr. Paul has devoted considerable attention, and that is the aspect in which they are grown. Some plants, even in special formations, prefer the south, and some the north aspects of a rock; others do better in the eastern, and others on the western slopes. Thus *Ranunculus pyrenaicus*, which is here done very well, is placed on the northern side of the rock, and although it will live in other situations, yet this is the true aspect. In the Pyrenees it grows on the very face of the rocks; and at St. Alban's Court Mr. Hammond has had holes drilled in the face of the sandstone, and planted in these it thrives vigorously. So, again, *Omphalodes Lucilie* delights in a shady position, so that growers of alpine have to consider a good

many things before they can succeed and learn by one another's experiences—successes and failures. The *Androsaces* were here flourishing, *sarmentosa* running along and flowering profusely, *lanuginosa* hanging down over the ledge of the rock, *earnea*—a difficult plant with most of us—but here doing well. The *Gentians*, too, so lovely in their brilliant blue, whether it be the *caerulea* blue of *verna*, or the deep rich ultramarine of *acaulis*, while there were some I have not seen before. *Dianthus* was represented by colonies of *alpinus*, *glacialis*, *neglectus*, *cœsius*, and others. *Claytonia virginica*, which is not always successfully grown, is here doing well. The *Cyclamens* which Mr. Paul obtained from Painswick are here thriving in a bed, under which the Elms that line the road have pushed their roots. This seems to suit them, and corresponds with my own experience, for they have thriven best with me in a border facing the south, which is full of roots, and where in the summer they are really baked; and yet here they are thoroughly at home and seedlings spring up in all directions.

The *Aubrietias* were in great force, and so were the herbaceous *Phloxes*—*setacea*, *Nelsoni*, &c. Nothing can be more taking than the masses of these covered with flowers and attracting the attention from a distance. In the chalk down Mr. Paul is attempting the British *Orchids*, and have no doubt that he will be successful. Here, where we are on the chalk formation, they abound all around us, and certainly very quaint and curious they are. They are not often successfully grown in gardens.

Among the herbaceous plants, not exactly rock plants, Mr. Paul has a good stock of that very curious yellow-flowered plant *Arnebia echioides*, which has on its opening a distinct dark spot on each segment of the flower, which gradually disappears as it advances in age; it is called the Prophet's Flower, and simply affords a strong illustration of the absurdity of attempting to keep to English names for our plants. Who would ever imagine it under its English name! while its Latin name brings it home at once to all growers.

As the day was not the most favourable for my visit I did not linger in the herbaceous ground, where I should have found much to interest me. My object has been rather to draw attention to the rockery, and to assure those who are inclined to grow Alpines that here within about ten miles of London it is done most successfully, and that if they will only go and see for themselves they can but be gratified. It is at all times worth a visit, but never so much, I think, as in the months of May and June. I need hardly say that they will meet with a courteous reception, while they will find in Mr. Pritchard, who has care of the rockery, an intelligent guide who knows probably about as much of them as any man in the kingdom, and who is quite willing to impart his knowledge.—D., Deal.

FRAGRANT CHRYSANTHEMUMS.

As yet varieties of these flowers that possess fragrance are few in number, and it is a pity that more are not scented, as such an addition would add much to their worth as cut flowers when used for room decoration. The only fragrant sorts that I know are the undermentioned. The first position must be given to the single variety *Mrs. Langtry*, a pink shade of colour; it possesses the fragrance of *Violets* in a marked manner, quite sufficient to perfume a whole house from a few plants placed therein; it is also free in flowering. *Patience*, another single variety, is scented, but in a less degree. *Progne* and *Dr. Sharpe*, both reflexed varieties, are highly perfumed, the former bright amaranth in colour, the latter magenta-crimson, is wonderfully free, making one of the best specimens of any section. These two if grown for their perfume alone should not be had in bloom early, as flowers produced from early crown buds are often deformed and rough in the petals; the colour also is not so rich, nor is the fragrance so powerful as when terminal buds are selected. *Dick Turpin*, *Anemone Pompon*, bright magenta, with a yellow eye, is dwarf in growth, flowering freely, and possessing a powerful *Violet* fragrance. These are the only varieties which I am acquainted with notable for fragrance of their flowers.—E. MOLYNEUX.

YOUR correspondent "C," page 418, wishes for the names of a few sweet-scented *Chrysanthemums*. I have only noticed two that are sweet-scented—the one mentioned by your correspondent, *Progne*, and *Dr. Sharpe*, which is scented like the *Violet*, but not so strong.—G. PRICE.

CHANGE OF SEED.

ON page 331 Mr. W. Iggulden, while treating on the degeneracy of Potatoes, concludes by saying, "If it is necessary to change Potatoes it is equally so in the case of all other vegetable seeds, and this we know is quite uncalled for." Now I have no intention of discussing the matter, but here are some facts. In a moorland district near me the farmers purchase their seed Oats from an earlier district. The advantage from this practice is, these Oats mature and ripen ten days earlier than those of their own growing. This ten days earlier means in late seasons a crop when it would be otherwise nil had Oats of their own growing been sown. Many years ago an old gardener said to me, "Save your own Parsnip seed and you will have better Parsnips." I followed his advice, and for some years his words came true; but after a number of years had passed they gradually deteriorated, until they completely failed to be a crop, although rotation was strictly carried out. Another peculiar case was with some Potatoes I lifted in July, being at least a month before others of the same sort were ripe. I planted these next season alongside well ripened tubers. Although the former were soft

and spongy they yielded by far the best crop, contrary to our opinions of good cultivation. How was this? My opinion was, that it was simply a case of precocity, and had I persisted in preserving tubers for planting from them they would have deteriorated.—N. B.



WE are desired to state that the meeting of Fellows of the ROYAL HORTICULTURAL SOCIETY will be held on June 23th, and not on June 14th, as announced in mistake last week.

— THE death is announced of MR. GEORGE JACKMAN of the Nurseries, Woking, at the age of fifty. Mr. Jackman succeeded his father in the business some years ago, and assiduously devoted himself to the extension of the nurseries which his father had successfully carried on before him. His name is closely associated with the hybrid Clematises, which he was so successful in raising, and will be perpetuated in that known as C. Jackmanni. In conjunction with the late Mr. Thomas Moore, Mr. Jackman was author of a work on the "Clematis as a Garden Flower."

— A BRIGHT and varied exhibition of GLOXINIAS is now provided in one of the houses at Messrs. J. Veitch & Sons' Chelsea nursery. The colours are very rich and bright—scarlet, crimson, purple shades in great variety, besides the delicately dotted forms. Most notable is a rich deep scarlet self named Comet, which is one of the erect-flowering type, of capital habit, free and beautiful. Aeme, also rich scarlet, is another fine variety, and one excellent quality of these highly coloured varieties is the persistency of their flowers, rendering them much more useful for decorative purposes and exhibition. A new variety named The Moor is an admirable companion for the above, having large beautifully formed dark rich purple flowers. Argus and Flambeau are other good varieties, amongst many more of great beauty, that prove the high merits of the strain that has been so carefully formed at Chelsea.

— IN the Rhododendron house of the same nursery several dwarf plants of the double RHODODENDRON BALSAMINÆFLORUM ALBUM are flowering in small thumb pots. Though only 6 inches in height they have heads of five and six pure white symmetrical flowers, and have a charming appearance. Such plants as these would be very useful for arranging with other taller plants, and there is no doubt that the variety will become a great favourite for cutting also, as the flowers are so neatly formed and well adapted for bouquets or buttonholes.

— EXHIBITION OF TULIPS AT HAARLEM.—The Tulips in the nursery of Messrs. E. H. Krelage & Son, Haarlem, at the Kleiner Houtweg, are now in full bloom. There are four beds of Tulips under two spacious tents, covering together an area of more than 7000 square feet. Two beds each of 700 bulbs contain the best varieties in all sections. Two other beds under a smaller tent contain each 840 different sorts, bybloemen and roses, all Flemish varieties of the most brilliant colours, equalling those which were the models of the best Dutch painters of former centuries. This Tulip show, which is now opened for the third time, is later than usual this season, and may last till the middle of June if the weather is favourable. The collection of late Tulips of every description planted in the nursery is very extensive, and contains everything good and rare in Dutch and Flemish varieties. Among the last a number are new. Besides, there is an unrivalled collection of Flemish breeders, violets and roses in the most striking and brilliant colours, which are most interesting not only as breeders but as bedding Tulips. The colours vary from pale porcelain to the darkest violet, from soft rose to the most brilliant red, much more striking than Gesneriana; there are light and dark brown shades, and a few nearly black.

— "W. B., Coventry," writes:—"I send two trusses of NEW DECORATIVE PELARGONIUMS, cut from seedlings raised by myself, and should like your opinion about them. They are both seedlings from Volonté Nationale, which is quite different, and resemble most Regalia and Triomphe de St. Mandé, but superior in both cases as regards

colour and shape. They are very free, there being eighteen and twenty trusses on each plant." [They are both fine trusses and useful decorative varieties. One has bright rosy scarlet flowers, margined with white, and having few dark veins in the centre of the petals; the other is of a dark purplish colour, with a dark blotch. The flowers are large and the trusses full.]

— A CONSIDERABLE quantity of LOQUAT FRUITS (*Eriobotrya japonica*) has been imported to the London markets, and even made their appearance on the hawkers' barrows under a variety of names, the favourite title being apparently "The New Jubilee Fruit." They vary slightly in size, but the largest resemble an Apricot both in size and colour, and make a rather pretty dish for the table arranged on dark green leaves. Though frequently seen in greenhouses, where it is valued for its large handsome foliage, no one seems to have succeeded in its culture as a fruit-bearing plant. Occasionally instances are brought to notice of plants producing a crop of fruits such as that at Stawell House, Richmond, which we figured a year or two since, but there appears to be much uncertainty about the setting, and with the greatest care several seasons often elapse without procuring any fruits, and probably without flowers. Out of doors the plant is liable to be killed in severe winters, except in the extreme south of England.

— "A. K. G." writes that he has "grown WEBB'S SENSATION TOMATO for two years. It is robust and compact in growth, beginning to fruit very close to the bottom of the stem. The fruits are produced in great abundance. They are of a large size, smooth, of a bright red colour. It fruits alike freely in pots, boxes, or planted out, and it is early. We have been gathering fruit since the 1st of May. These plants were produced from seed sown in February, repotted until they were in 10-inch pots, then trained on wires in a vinery, and they promise to bear freely the greater part of the season. As early Tomatoes are exceedingly valuable everywhere the variety in question is sure to become a favourite."

— RATING OF NURSERIES.—It is announced that a public meeting of nurserymen will be held at the Horticultural Club, Henrietta Street Covent Garden, on Tuesday, June 28th, to consider the excessive rating of nurseries, and to agree on a combined action in an endeavour to procure the reduction of the assessments. The chair will be taken at 4 P.M. by T. Wood Ingram, Esq., by the firm of Wood & Ingram, Huntingdon. The meeting will be held under the auspices of the Nursery and Seed Trade Association, and the Horticultural Club have kindly lent their rooms for the occasion. The Secretary is Mr. F. C. Goodechild, 25, Old Jewry, London, E.C.

— ARRANGEMENT AT EXHIBITIONS.—A visitor writes, "A better example of a tastefully arranged and diversified flower show I have never seen than that afforded at the summer meeting of the Royal Botanic Society recently; and beautiful as the shows in their large marquee invariably are, they surpassed all previous efforts as regards general effect on the last occasion. Those who have the management of large provincial or metropolitan shows, and who are interested in the maintenance of their popularity, would do well to take a lesson from the method adopted at Regent's Park. It might not be possible to provide such well-designed grass banks and mounds in every case, but something could be done to avoid the too frequent employment of formal wooden stages that when draped with green baize are scarcely endurable, and when left uncovered are positively hideous. Summer shows held in tents and marquees out of doors admit of much more taste being exercised than can be done with winter exhibitions held in rooms and public buildings."

— ONE of the members of the Orange family (*CITRUS JAPONICA*), is occasionally grown here for ornamental purposes, but in the Southern United States, especially in Florida, it is being cultivated commercially. According to an American paper there are two distinct varieties of this fruit, one having oblong, the other a round fruit. "They attain the size of about a medium-sized Plum or Apricot respectively. The tree is hardy, bears extremely young, the fruit hanging on the branches in the greatest profusion. We had plants 15 inches to 24 inches high on which we counted seventy-six Citrus fruits. It does not claim to be a table fruit, though even eaten raw it has a very agreeable flavour; the rind can be eaten with the flesh, being not thicker than the skin of a Plum or Cherry. It has a decided aromatic Orange flavour; the flesh is very juicy with the sub-acid quality of a Lime, very cooling and refreshing,

containing two seeds. The main value of this fruit will be for preserving and crystallising. For this purpose it is eminently adapted. It is not necessary to take off the skin on account of its extreme thinness. The aroma of the rind blending with the acid of the flesh will make it one of the most desirable fruits for preserves, jellies, and crystallised fruit. It is a tree which will soon gain favour and stand on its own merits, once known among California's horticulturists. It does not, like all Japanese Orange trees, attain any considerable height, its growth being very bushy with long divergent branches, 10 or 12 feet being its height."

— MR. T. CRESWELL DEAN writes:—"Having seen in your Journal some time ago an account of a *LAPAGERIA ALBA* with nine open blooms in one spray, I have pleasure in informing you a friend of mine, R. Wardleworth, Esq., of Blackley, near Manchester, has a very fine plant, and recently brought me a spray with eleven fully developed blooms and four buds not quite open. This is, perhaps, one of the finest trusses we have ever known in this part, and I am quite sure is worthy of notice in your widely circulated paper. This spray is more than a foot long, and flowers in substance and form are perfect."

— CHANGING ROSE SHOW FIXTURES.—An indignant protest has been forwarded to us from the Secretary of a Rose society complaining of the action of another Rose society affiliated with the National having altered its date after public announcement because of the lateness of the season, and saying that such a proceeding is unjust and misleading, and must evidently lead to confusion.

— ROCKWORK AND ROSES.—In another column will be found an interesting account of a very considerable and enjoyable rockery that we had the pleasure of inspecting a few days after our esteemed correspondent's "Alpine Ramble," and we can testify that not one word too much is said in favour of the method of arrangement adopted and the disposition of the plants that are thriving so well. We have only to add that Mr. Paul's rockery, which will bear inspection, is very accessible, being close to the Broxbourne station of the Great Eastern Railway, not Cheshunt, which is two or three miles away. It is well that intending visitors to Mr. George Paul's nurseries, who may not be acquainted with the district in which they are situated, should bear in mind that Broxbourne is the station for his Alpines, Cheshunt for the Roses.

— APPROACHING the CHESHUNT NURSERY after our alpine ramble we found a feast of Roses under glass, and plants and trees starting freely outdoors, but late, for there are very small "plants" at Cheshunt, only just visible in the seedling beds, and hedges of Roses that have grown into "trees." Some of the Tea Roses in pots, that would be "in" for Manchester, were bearing their second crop of flowers, in many cases better than the first, showing the great value of this section for indoor decoration, and affording a long season of blooms. Sunset, which is free and good for pots, is being increased largely, as also is The Bride. A small Rose that will find admirers is the "Red Pet," a sport, we understand, from the white miniature, which it resembles in character, but the flowers are of a rich red colour. A number of other promising Roses were also advancing. In the outdoor seedling beds the plants are left out the first winter without protection, in order that the survivors may be relied on as hardy. It is certainly a very practical method of settling the point. The Tea Rose beds showed all the plants starting strongly. They are grown as if on Asparagus beds with alleys between, earth being piled round the base of the stems before winter, levelled down in spring, and the plants cut closely back—a safe and simple plan of growing Tea Roses. For securing the best display of certain Roses, Austrians and Persians among others, the strong growths of the preceding year are not cut back but pegged down, "and perhaps," Mr. Paul significantly observes, "this plan will suit Her Majesty." The way an old Maréchal Niel has been "cut and slashed," after bearing its early crop of flowers would frighten some people; but it is the way to fill the house with vigorous young shoots that bear the grandest blooms. There is much of interest to be seen at Cheshunt now—more as the season advances, and always a pleasant reception from Mr. George Paul.

— THE Paris correspondent of a London daily paper in referring to FLORAL FASHION remarks:—"Parisian brides and bridesmaids do not take with them to church the lovely bunch of white flowers which tradition requires the bridegroom and his best men to supply; but it is inherent on the former to heap lovely blossoms in the brougham that

shall convey him and his newly-made wife back to the house of her parents after the ceremony. This is a very pretty fashion, and deserves to be kept up. Much more beautiful than the circular and formally arranged bouquets that used to be presented by the gentleman anxious to get into the good graces of his lady are the rustic baskets of reeds filled with growing flowers decorated with bows of ribbon carefully chosen as to colour. Long after the poor Roses or what not, subjected to the process of wiring, have faded and gone, the plants flourish—a pleasant feast for the eyes and a charming decoration for the drawing room."

— MR. M. P. ARNOLD thus refers to the *IPOMOEA NOCTIFLORA* or MOON FLOWER in the *Florida Despatch*. "It claims Mexico for its home, but it takes most kindly to Florida, as I can well testify. I planted a single seed, given to me by a friend, under the projecting end of my kitchen. The soil was dry and sandy, although there was some clay mixed with it. The vine made a slow growth at first, but as the rainy season advanced it became more vigorous. The leaves were much like the common Morning Glory, but much larger. The plant finally became rampant, and elambered over the greater portion of one side of the house. I had paid but little attention to it for a long time, when suddenly one evening I was astonished at five or six immense saucer-like flowers of pearly whiteness, which swayed and nodded in the evening wind. They exhaled a delicate Jessamine-like odour that was tantalising in its evanescent sweetness. By sunrise the flowers were faded and gone, but on the succeeding evening a new crop of flowers would gradually unfold themselves, and again would steal forth that subtle, fleeting perfume of the famed Evening Glory. I have frequently taken my chair of an evening and placed it before the vine, and, settling on one particular bud about to open, I would watch the gradual unfolding of this giant of the Morning Glory tribe. It became exciting and fascinating to watch the slow expansion of this chaste and lovely flower. At length the final crease would be drawn out, and the flower would present itself to my admiring gaze. On a dark night a dozen or fifteen immense blows would startle a stranger on coming suddenly around the corner of the north end of the house. The humming birds were extremely partial to the flowers, and would frequent the vine almost every evening, flitting from flower to flower like feathery sprites."

— AN exhibition of the PRODUCTS OF THE ARTS AND INDUSTRIES RELATING TO HORTICULTURE is being organised at Antwerp by the Palais de l'Industrie des Arts et du Commerce, and will be open from the 19th of June to the 15th of October, 1887. A special commission has been elected for the organisation of the Exhibition, consisting of MM. Edouard Baartmans, I. J. de Beucker, Henri de Bossehère, Charles de Bossehère, Antoine Gillis, Gustave Hoefkens, Charles Van Geert, jun., and Ernest Van Meerbeeck, with M. Florent Pauwels as President, the Baron de Caters as Vice-President, and M. Oscar de Leseluze as Secretary. M. Colinet, Palais de l'Industrie, 186, Avenue du Sud, Antwerp, has been appointed Manager. A park of some 17 acres, and a large hall covering more than 5000 square yards of ground, provide the managing committee with ample space for the arrangement of all exhibits to the best advantage. From a circular that has recently reached us we gather that intending exhibitors are required to send before the 10th of June, at the latest, an exact and detailed list of the objects they wish to exhibit, and that these will be received from Wednesday, June 1st up to Thursday, June 15th, at midday; cut flowers, bouquets, &c., for the decoration of such exhibits, will, however, be received up to June 18th. The Committee reserves the right of refusing admission to any exhibits that it does not consider worthy of being shown. The Committee of Adjudication will be invited to take into consideration not only the novelty, importance, and beauty of the articles exhibited, but more particularly excellence of manufacture and moderateness of price. A gold medal, three silver-gilt medals, five silver medals, and six bronze medals, with honourable mentions, will be placed at its disposition by the Society for each group. One class is devoted to horticultural implements generally, such as gardeners' and nurserymen's tools, water-cans, syringes, mowing machines, trellises, espaliers, &c.; another to pictures of plants, flowers, and fruits, herbals, entomological collections, horticultural works, plans and designs for ornamental works, vases, statuary, tents, rustic furniture, gravel, and other materials for path-making and draining; another to furniture for greenhouses and winter gardens, garden pottery, mats, aviaries, &c.; and a fourth to glass structures of all kinds, and heating and ventilating apparatuses.



HARDY ORCHIDS.

I QUITE agree with your correspondent's remarks last week about the beauty of hardy Orchids, and it is surprising that more attention is not paid to these plants. The Orchises are nearly all easily grown, and are moreover very showy, especially *O. maculata* and *O. mascula*, and they are even worth growing in pots for the greenhouse. They are indeed the only Orchids that can be employed successfully in an ordinary greenhouse. One cause of failure is the neglect to provide hardy Orchids with the special soils they require, and attempts to grow plants found on chalk downs in the same situations as the moisture-loving species found in low semi-marshy localities can only result in failure. The peculiarities of plants in this respect need careful consideration, and many seeming difficulties will be overcome. Another cause of loss is, that often amateurs search for the wild Orchids, and dig them up for transference to their own gardens at any time, quite regardless of whether it is a suitable period or not. Lifted in this way three-fourths of them are almost certain to die. The swamp or moisture-loving species are liable to suffer in the summer in two ways—first, by their being too directly exposed to the sun, and secondly, by having insufficient moisture in the soil. During the summer months it is almost impossible to give them too much moisture. Perhaps the plant received by your correspondent as *Ophrys* is *Orchis provincialis*.—S. E.

ORCHIDS AT KEW.

MUCH attention has been given to the Orchids at Kew in the past few years, and with increased facilities for cultivation, and the gradual addition of distinct and effective species, the collection has been considerably improved. There is now an unusually handsome and varied display in that portion of the T range devoted to these plants, and especially numerous are the Masdevallias, which include besides the useful ornamental *M. Harryana* and *Veitchiana* varieties many rare and curious species, such as *Reichenbachiana*, *triaristella*, *infracta*, *ochthodes*, *trichæte*, *Shuttleworthi*, *xanthocorys*, *poreclipes*, and *radiosa*. Of *Odontoglossums* there are excellent examples of *Odontoglossum vexillarium* flowering very freely, of capital colour and in fine healthy condition. *O. citrosum* is beautiful with its pendulous racemes; *O. crispum*, *O. Pescatorei*, *O. radiatum*, and many others are also noteworthy. A large plant of *Sobralia macrantha* has been flowering for some time and still bears its large flowers. *Cattleya Mossiae* and the fragrant yellow *C. citrina* are still in good condition. *Dendrobiums* are numerous, but there is one plant of the charming *Dendrobium transparens* in a basket that is the finest example of this Orchid that we have seen; it has fourteen flowering growths with sixteen to twenty flowers each, and the effect produced is beautiful in the extreme. The sepals and petals are white with a violet purple blotch in the lip, and they have a light graceful appearance quite distinct from others of the genus. *D. Dalhouseanum* is also fine with eight racemes of six or seven flowers each. The elegant *Ionopsis paniculata* with a cloud of its delicate mauve-tinted flowers furnishes an attraction in the warmer house, together with several *Cypripediums*, *Saccolabiums*, *Aerides*, &c.

In addition to those already named, the following were in flower:—*Pleurothallis semi-pellucida*, *P. Barberiana*, and *P. ornata*, all very interesting and curious. *Oncidium dasystyle*, *Hexadesmia crucigera*, *Phaius bicolor*, *Cypripedium Stonei*, *C. macranthum* (in cool house), *Saccolabium curvifolium*, *Dendrobium capillipes*, *D. mesochlorum*, *D. secundum*, *D. hercoglossum*, *D. Jamesianum*, *Aerides Fieldingi*, *Cyrtopodium squalidum*, *Cœlogyne corymbosa* (*ocellata maxima*), *C. ochracea*, *Epidendrum variegatum*, *E. difforme*, *Stanhopea oculata*, *Lissochilus Krebsi*, *Lycaste cochleata*, *L. Dayana*, *L. plana*, and *L. candida*.

LÆLIA PURPURATA.

THIS when well grown is one of the finest Orchids in cultivation, and it well deserves its great popularity. Mr. J. Cypher of Cheltenham had some grand varieties at the Regent's Park Show recently, and he has also had a magnificent display in his nursery, over 400 blooms being open at one time. Some of the flowers were of astonishing size and beautifully formed, some of the best indeed that we have seen, and good varieties are by no means scarce now. Like all the plants under Mr. Cypher's care they are admirably grown, and a large miscellaneous collection of Orchids is also looking extremely healthy, and bearing numbers of flowers.—T.

CINERARIAS.

As my gardener has been more than usually successful with the Cinerarias it may interest your readers to have a few particulars as to the treatment adopted. The flower heads were fuller than I have ever seen them. I have measured scores of the blossoms, and find several fully 2½ inches in diameter, and the colours exceptionally rich. The seeds were procured early in April from Messrs. Carter & Co. The first sowing was made April 14th, in pans half filled with rough peat, to

which was added a mixture of loam and peat finely sifted, with plenty of sand. The pans were then covered with glass, and placed on the higher shelves in a cool greenhouse. As soon as the plants showed their second leaves they were potted singly into thumb pots, using rather coarse soil, but taking care not to cover the hearts of the plants. They were then placed in a close frame shaded, and sprinkled morning and evening till well established, being kept close for a couple of weeks, after which more air was given. As soon as the pots were full of roots the plants were shifted into 4½-inch pots, and again at the end of September into 8-inch pots (for the largest specimens). As soon as the flower buds showed the plants were liberally supplied with soot and liquid manure. Plenty of air was given night and day when the weather was suitable, and at all stages of their growth the plants were shaded from bright sunshine.

The soil employed was equal parts of rich loam, leaf mould, and thoroughly decayed horse manure, mixed with charcoal dust and coarse sand. I trust the above account may lead some of your readers to test still further the capabilities of this handsome and interesting flower.—C. T. CRUTTWELL, *Benton Rectory, Norfolk*.

ROSE THE PURITAN.

THIS handsome Rose has attracted so much attention recently, both in America and England, that Rose-growers are repeatedly inquiring respecting it. The illustration (fig. 76), for which we are indebted to Messrs. W. Paul & Son, gives a faithful representation of its general characters, judging from the blooms we have seen. The variety was raised by Mr. H. Bennett of Shepperton from a cross between *Mabel Morrison* and old *Devoniensis*, but though it is repeatedly referred to as a Hybrid Perpetual, there seems to be a preponderance of the Tea in the habit and foliage. The blooms are fragrant, large, of good form and substance, the petals white, slightly recurving at the margin, and the variety appears to be both free in growth and profuse in flowering.

It will be remembered that on April 12th, this year, Messrs. W. Paul and Son, Waltham Cross, who are the agents for the Rose in this country, exhibited stands of two dozen blooms at South Kensington. These had been dispatched from New York on the 2nd of April, and it was astonishing how well they had travelled, as when shown they were almost as fresh as if they had been conveyed a hundred miles or so by rail. Half the number of blooms were placed upright in tubes of water, and the others were firmly packed in damp cotton wool in tightly closed tin boxes. The latter were much the better, and were very little the worse for their journey.

THINNING LATE GRAPES.

By the time this is in print much of the important work of thinning the berries on bunches will have been completed, only those started without artificial heat and the very latest crops remaining to be done. The first proceeding ought in all cases to be thinning the bunches. We are apt to overlook the fact that by leaving too many bunches we not only run the risk of not ripening the crop satisfactorily, but over-cropping leaves its mark on the Vines for one or more seasons to come. Even if there were no risks to be run in the latter respect, it cannot be too often pointed out a moderately heavy well-finished crop is of more value, and usually gives more pleasure than a much greater weight of inferior produce. It is not always the gardener's fault that too many bunches are retained; many employers insist upon the retention of one bunch on every lateral of a fruit-bearing size.

When the bunches are small, or on an average likely to be less than 1 lb. in weight, every strong lateral on a healthy well supported Vine may be depended upon to ripen one satisfactorily, but when they run rather heavier it will be much safer to leave a bunch on every other lateral; while in the case of comparatively large bunches, or, say, approaching 4 lbs., one to every third lateral may prove quite as much as can be finished properly. I know from experience how hard a matter it is to cut away a number of good bunches, but I have much less hesitation in thinning the bunches than formerly. Too often it is not fully realised how heavy a crop is left on the Vines till the Grapes are nearly coloured, and when it is too late to do much good by thinning. Our plan is to make a note of the number of bunches perfected on the various Vines each year, and by perfected I mean well finished examples, this proving a good guide for the next year's thinning. It is not often any of us err on the wrong side—that is to say, in leaving too few bunches on the Vines, but it does happen occasionally. For instance, we may be too lenient with young Vines, and these having a new and rich root run, as a natural consequence form rank growth, the reverse of what is needed for laying the foundation of profitable or enduring rods. Secure medium-sized short-jointed canes at first, and gradually build them up. A Vine planted this season, and which grows strongly, ought to carry one good bunch next year, and about three during the third year, or according to the habit and vigour of each Vine. Some regard must be paid to the nature of the border, also taking into consideration the amount of food within reach of the roots. Those rooting in a strong loamy border, with plenty of fibre near the surface, ought to

support a heavier crop than those with a border largely composed of poor sandy loam. At the famous Longleat vinery the least satisfactory Vines at one time were Lady Downe's, but since Mr. Pratt has cropped more heavily, leaving in many instances two good bunches on a lateral, a marked improvement has been effected, and I notice there is every prospect of a valuable crop being secured this season. All the Vines in that large range are vigorous, and heavy cropping in this case has not

we are thinning, one of the best shoulders being snipped or snapped off, or the berries may not be swelling so evenly as could be wished, this necessitating the removal of the bunch and the retention of a previously doomed yet better example. Most of us prefer to have large bunches, such as might please the judges at an exhibition, but for real service much smaller ones in greater numbers are the best. Fresh bunches always look best on the dining table, and if a larger dish is required



Fig. 76.—ROSE THE PURITAN.

apparently been so unwise, and is a very different matter to the other extremes I have just alluded to. Those who have their Vines rooting principally in inside borders, and give these plenty of moisture and what manure, artificial or otherwise, they require, may venture to retain heavier crops than would be safe where the Vines are rooting wholly in outside borders and at the mercy of all weathers.

I prefer to defer the finally thinning of the bunches till the berries on those intended to be retained are thinned, this being especially advisable in the case of shy setters. We might have an accident with the bunch

occasionally it is a simple matter to cut three instead of one. What is also of importance, these small bunches, or those weighing from 1 lb. to 2 lbs. in weight, keep much better than do the larger clusters, and are, therefore, much the best for bottling. At Knowsley, a place famous for the quality of the fruit grown, I observed the bunches of such sorts as Muscat of Alexandria, Alicante, and Gros Colman were not large, but was informed by Mr. Harrison, the experienced gardener in charge, that the largest are cut away, the smaller ones keeping so much the better. We are not all equal to this sensible practice of cultivating

medium sized bunches, the most prevalent custom being to preserve the largest, but there is no disputing the soundness of Mr. Harrison's teaching all the same.

Bunches, whether large or small, to keep well must be freely thinned, even at the risk of apparently overdoing it. I have a great dislike to overthinning loose bunches that settle down on a dish like a pancake, and delight in having them full and compact with a tendency to roll about on the dish. Those intended for exhibition ought not to be overthinned, these travelling badly and cutting a very poor appearance on the boards; but so much do I dislike loose bunches that I very frequently err in the opposite direction, and do not take out enough berries, this preventing many of the berries swelling to their full size. Compact bunches, the berries being in a solid mass, are late in the season liable to decay wholesale, one bad inside berry being the forerunner of this vexatious loss, hence the necessity of the early removal of nearly, or quite, all the berries with an inward tendency, as well as those that cross or overlap each other. The berries very frequently run in triplets, the central one being the largest, and if retained and the other two snipped off will eventually develop into the full size, which the side berries would not do. It is a difficult matter to plainly instruct novices in the art of thinning out the berries through the medium of a paper, and I can only further suggest that about two-thirds of the berries be taken out of the bunches of Black Hamburgh, Buckland Sweetwater, Foster's Seedling, Gros Maroc, Madresfield Court, Muscat of Alexandria, Golden Queen, and Mrs. Pince, and fully three-fourths out of the Alicante, well set Alnwick Seedling, Lady Downe's, Gros Colman, and Mrs. Pearson. The shy setters, such as Mrs. Pince, Muscat of Alexandria, and Muscat Hamburgh, ought not to be thinned very freely at first, as many of the apparently well set berries may refuse to stone and swell any larger than Peas. As soon as it can be seen which promise to stone partially or properly, the final thinning may be completed, and in this manner good even bunches be secured. Buckland Sweetwater also requires to be thinned gradually, or otherwise there is every possibility of very uneven bunches resulting. Gros Guillaume, producing a large framed bunch, requires to be only lightly thinned out; indeed, in most cases all that is necessary is to remove the misshapen or badly stoned berries.

Opinions vary as to the advisability of shouldering up the bunches, but if large bunches are preserved I hold that they ought to have the shoulders supported. All long uneven shoulders I would either shorten in or cut clean away. If their retention improves the shape of the bunch all well and good, if not they should be cut away, a pretty bunch, or one of good pyramid form, usually pleasing good judges better than much large scrambling examples. Such sorts as Gros Colman, Alnwick Seedling, and Lady Downe's usually develop one large shoulder, sometimes of nearly the same length as the bunch proper. They increase the size, but detract from the appearance of the bunch, and if the latter is of a good average size we invariably cut away the shoulder. Removing this early appears to strengthen and enlarge the bunch, and it is very certain the shoulderless bunches keep best. All the lowest of the lateral shoulders, if I may so term them, should be suspended to the wires overhead with neat strips of raffia, and being brought up into a horizontal position considerably enlarge the bunch, as many more berries can be retained than if no shouldering-up was attempted.—W. IGGULDEN.

FRITILLARIAS.

On page 397 of the *Journal of Horticulture* there is an article on the Fritillary. In our old garden we have three varieties growing at will in odd places—the crimson spotted flower, now over; a white one, also over; and a dark one, a flower of which I enclose, which blooms later than the two first-named. May I ask which is the "Snakeshead" mentioned as growing in the meadows round Oxford? I presume it to be the spotted blossom. I have not yet found the other two growing wild, or is it yet another variety?—ALICE BURGESS.

LONDON'S LESSER OPEN SPACES—THEIR TREES AND PLANTS.

NEW SERIES.—No. 3.

NEVER will the antiquaries be able to decide, I believe, whence London got its name; recently the theory has been upset that it originally was the "city of the lake." However, the city and its vicinity, early a place of springs and streamlets, but with sagacity exceeding what is shown by some moderns, its ancient residents declined to drink water polluted by sewage. Old pipes and conduits have been discovered, proving that centuries ago water was brought into London from springs or wells situate at Bayswater and Paddington. Beside the historic streamlet of the district, which gave a name to Tyburn and Marylebone (St. Mary on the bourne), there were other winding brooks, the convenience of which, and also the attractions of little hills with a south aspect, well screened by the woods northward, led many gardeners to resort to Paddington when English horticulture was in its infancy. It was here, too, that Sir John Hill, in the reign of George III., had his medicinal gardens, and produced his vaunted Waterdoek essence and his balsam of honey. The late J. C. Loudon also made his residence here for some years, and it was the scene of various experiments on his part, the benefits of which are now reaped by others. And on, or close to, Craven Hill, which was a pest field in the time of the plague, formerly were the nurseries of Messrs. Hopgood.

In or about 1764, the growth of St. George's parish led to the

acquisition of a new burial ground at Paddington, close to Hyde Park, and this space, six acres in extent, is open to the public, interments having long ceased here. There is a tolerably active movement going on now, having for its object the conversion of old London graveyards into gardens, but some cases are exceptional, and here is one. This ground could not advantageously be treated thus, owing to the host of tombstones, and the arrangement of these, yet it might be improved without such transformation. Apparently, owing to its position, visitors from adjacent streets resort to it in small numbers. Perhaps a few come also from a distance, drawn by the fact that here reposes an eccentric divine, Lawrence Sterne; a great soldier, General Picton; and a notable novelist, Mrs. Radcliffe. That this was once a piece of moist pasture ground is suggested by the Sedges that still flourish in some parts. There is, moreover, a growth of dank moss, for, like many London enclosed spaces, it is insufficiently drained. It had some Limes and Elms, planted probably about a century ago, and a few Poplars; there might be more, for the soil is suitable. Birches are here, though not of size, and exhibiting catkins, which only occasionally happens in the metropolitan district. This species, as I have remarked, is too seldom made use of about London suburbs. And the Beech, a tree somehow deemed appropriate to the mourner, is represented, but this is a species that does best in the open. The copper-coloured variety is suitable in its aspect, as contrasting with trees of lighter foliage, such as the Lilac and Laburnum. It seems, however, to have a rather hurtful effect on plants growing under its shade. One rarely finds near London a Beech of any proportions, yet I do not think the tree is meddled with by the caterpillars of the goat and leopard moths. In St. George's ground there is the usual number of Lilacs and Laburnums to be found in similar spots, and some rather old Hawthorns, though the sombre trees that our grandfathers liked to set in graveyards are scarcely represented. In spite of the unfavourable spring, these shrubs have more than the average show of blossom about London and elsewhere. One large Laburnum here presents a curious sight, from its having bent downwards while young at the base of the trunk, but continued to grow and increase, also throwing off numerous boughs standing at various angles on the head. Elders, singly and in small clumps, one expects and finds in such an enclosure. I now think they were introduced, not from superstitious reasons, but because people attributed to the plant a salutary quality, like that we attribute to the Eucalyptus and sundry Pines. It was rather odd to see some old Blackthorns still able to leaf, if not to flower, and under foot in several spots, there was a thick growth of Yarrow, which appears to flourish now and then within London limits, conquering grasses, and rivalling Crowfoots and Plantains on neglected soil.

We can hardly fancy that when Her Majesty's grandsire came on the throne the streets and squares of the West End were nearly all non-existent, and the open land from which St. Martin's-in-the-Fields had its name yielded farm and garden crops. Though Hay Hill, Piccadilly, was not named from that product, if the Haymarket was, but from the stream called the Aye, which flowed past to run into the Thames at Westminster. Farm Street, however, is a reminiscence of Mr. Alsop's farm in this quarter. The comparative seclusion of the spot is curiously shown by an old advertisement, offering £2 reward for a man who had cut down and carried off an Elm tree; there were many scattered hereabout though none of any age now survive. There are some old Limes in the gardens of Berkeley Square (and in the mansion grounds), and some fine Planes around the former, also a central group, but trees have been planted too numerous, hence the grass suffers and the flowers placed in the very diminutive beds amongst the plots. Here are a few large Thujas and some other familiar evergreens, which seem to have had unpleasant experiences of a London spring, also a double Privet hedge. It is observable that occasionally the Privet is not truly evergreen, but loses nearly all its winter leaves before the new ones expand. The extent of Berkeley Square is about five acres, the adjacent square of St. James's the same, both as yet unopened to the public. The latter calls for no remark, except that it is memorable for the fact that the great Samuel Johnson wandered round its area at night when he was unable to pay for a lodging (it appears to have been more shaded with trees than now), and also for this, that into the central pond the rabble flung the keys of Newgate, seized in the Gordon riots. As these were not discovered for many years afterwards, this pond must evidently have been allowed to abide in an offensive condition.

Leicester Square, nearer to Charing Cross, was once Leicester Field, a broad space which gave effect to the only house near it, the mansion of the Leicesters and Sydneys, a favourite arena for military evolutions, and at other times the resort of washerwomen. From it there was a good view of the windmill, which gave name to a modern street. Then there came a change; more houses were built, and the ground enclosed with railings about 1737. Views dating from the eighteenth century show the square prettily laid out with grass plots and cross walks, also a double row of trees. By degrees, however, the square got into a neglected state, and from 1860 to 1874 it was a disgrace to the metropolis, and its owners too, who would neither reclaim it nor suffer others so to do. It was one of Mr. Albert Grant's good deeds to purchase the land and spend several thousands upon it, planting it with trees and shrubs, and laying out flower beds. A number of the shrubs placed here in 1874 have unfortunately died off, not being all of them suitable to the place, and the trees have not made much progress yet, and the spring bulbs here do not flourish like those on the adjacent embankment; poor, too, is the show of flower on the Lilacs and Ornamental Currants. It would be advantageous to add to the evergreens, some of those now growing

are of sombre aspect; for example, in the vases which encircle the middle space there have been set specimens of *Cupressus Lawsoniana*, when it would have been easy to have had brighter-looking shrubs. The antique statue of the First George has given place to one of Shakespeare, which looks down upon the central fountain and the radiating flower beds, and at each of the corners are busts of notoriety. If Ferns and creepers were more used than at present to fill up nooks and corners about these public gardens a considerable improvement would be made; it is not difficult to find species that will succeed in London. Golden Square, off Regent Street, claims a word, though it is small and as yet private. It is another relic of the open fields. This possesses the advantage of having its ground rather elevated, hence it drains better. It has some old Planes and rugged Hawthorns, and numerous Lilacs scattered over its grassy space, but a scant display of flowers of the cockney type.—J. R. S. C.

CHRYSANTHEMUM AUDITS.

MR. DAVIS naturally, but at the same time erroneously, concludes from the absence of Duchess of Albany from my last Chrysanthemum analysis that it was scarcely, if at all shown, at "the National" in 1886. The fact is, as is well known, there are unfortunately two Japanese Chrysanthemums of this name. In the hurry of taking down the names of the flowers in the different stands I omitted to place a distinguishing mark against the best of these two varieties, so that when I came to tabulate the results it was of course impossible to accord to it its proper position in the list. I, however, intended to add a note below the table stating that the two Duchesses taken together were shown in fourteen stands at last year's exhibition. Now, as Duchess of Albany is placed 24 in "B. D. K.'s" list, and credited with fourteen first prizes, this shows how closely the two lists would have been in accord on this point had I been able to give Jackson's variety its proper value.

As regards Belle Paule. After the discussion in your pages last year respecting the great unreliability of this variety, it seems to me scarcely fair to select this capricious beauty as the test flower of any Chrysanthemum audit. Moreover, as both Mr. Davis and Mr. Molyneux have pointed out, last season was a particularly unfavourable one for Belle Paule, so that we might reasonably expect it to stand lower in my analysis than after a year which suited it better.

I was away from home at the time Mr. Davis's remarks appeared, or should have replied to them earlier.—E. M., *Berkhamsted*.

INTERESTING ASCLEPIADS.

WHILE governing his Presidency of Madras Sir Mountstuart Grant Duff has found time, says the *Daily Telegraph*, to correspond with the authorities of Kew Gardens and other centres of botanical work and research. The abundant detail and scientific importance of his letters filled those who received them with admiration, and they have without doubt done much to extend floral and arboreal science. In one of the last of the communications, addressed to Mr. Thiselton Dyer, Sir Mountstuart furnished an instance of those still unexplored marvels of the vegetable world just spoken of. He enclosed some leaves of a plant called *Gymnema sylvestre*, an Asclepiad. The Governor had found out that by slowly chewing two or three of its leaves the power of distinguishing the taste of sugar and certain other flavours becomes absolutely abolished. In drinking coffee after eating *Gymnema* leaves it was impossible to say whether sugar had been put in or not. The aroma of a cigar was in like manner entirely negated, and Sir Mountstuart justly thought, after a series of such experimental proofs of its power over his own tongue or palate and those of others, that the plant might serve some important medical use. Those who received a sample of it here found its curious property well retained; and Kew has since written to the Director of Public Plantations at Ootacamund asking for seeds to raise material for future experiment.

Yet, in truth, the palatal action of *Gymnema sylvestre* is merely an example of a thousand unknown, or only half-known, marvels with which the vegetable world teems. Man has only partly explored that realm of magic opened to his feet in every green forest and field, where from one plant comes the pleasant aroma of theine or caffeine, from another an alkaloid, exactly similar in aspect, which, however, crisps the nerves with tetanus, while from a third is distilled the potent but dangerous morphia, benignantly soothing weary sufferers into repose, yet a very serpent of death if abused. This same family of the Asclepiads is a perfect treasure-store of natural miracles. The order consists, for the most part, of shrubs or herbs, usually yielding a milky juice and often of twining habits. It chiefly haunts tropical regions, but examples are found in northern climates, and are best represented in this country by the Swallow-wort. Not fewer, however, than 159 genera and 958 species have been enumerated of the immense family which derives its name from *Æsculapius*, the God of Physic, because of the various and notable medicinal properties of its members. The beautiful and fragrant *Stephanotis* and the lovely *Hoya*, with its creamy blossoms gemmed by glittering drops of honeydew, may give to lovers of flowers at home delightful examples of Asclepiads, albeit the singular properties of such plants are little suspected.

Sir Mountstuart's *Gymnema*, the leaves of which can thus suddenly annul the sense of taste, is but one of the minor sorcerers in this band of enchanters. There is the *Calotropis*, which yields the medicinal bark known as mudar, curing skin diseases better than sulphur, and almost as good as ipecacuanha for dysentery. Mudarine, an extract from this

plant, has the odd faculty of turning to a jelly when heated, and becoming fluid on cooling. Then there is *Cynanchum*, the leaves of which are employed to adulterate Senna and also to mix with genuine Scammony. *Hemidesmus* is, again, an efficient substitute for Sarsaparilla, and goes indeed in India by the name of "country sarsa." Not to be outdone by her woodland sisters, who thus simulate and supplant certain of the most respectable medicaments, *Marsdenia*, another of the family, produces an admirable dark blue dye as rich as indigo, while another of the same name furnishes a fibre so strong that the Raj-Mahal hillmen make from it bowstrings as tough as cat-gut. An American variety affords from one and the same root india-rubber, soft downy stuffing for pillows, and excellent material for rope and paper. A Malayan Asclepiad climbs very high on Betel Palms, and on its upper stalk produces the most grotesque pitchers, wherein it stores water for its own supply in dry seasons. The family eccentricities are in fact endless. The *Hoya*, already spoken of, looks as if moulded out of white wax, and diffuses a perfume like a breath from Paradise; but the *Stapelias*, although its very close relatives, have a smell so vile that they are justly called "carion plants," and produce small ugly flowers coloured like a livid wound. A species called *Tuberosa* grows in America, and is there familiarly known as the "Butterfly Weed" and also the "Pleurisy Root," because of its remarkable demulcent gifts, for these odd vegetables kill and cure by turn, and the young shoots of a variety found in Arabia are eaten as a kind of Asparagus by every camel driver and pilgrim who can get them.

In Madeira there is another Asclepiad going by the name of "Silk Plant," which in many half-examined ways is quite as extraordinary a plant as any of them; and, though the name is fanciful, several of this family in different regions are popularly known as "Wild Cotton," because of the tuft of hair adherent to their seeds. Almost all exude the characteristic milky juice, one drop of which will often so sting the tongue that the herb, whose beautiful and perfumed blossom had tempted the tropical sportsman to nibble one of its pale leaves, will be looked upon afterwards by him as something rather worse than a Upas tree. Yet the same vegetable milk, which in the *Gymnema* of the ex-Governor of Madras paralyses the nerves of taste, and in *Cynanchum* absolutely strangles the rash eater with throat spasms, is, in the form of another species—native of Ceylon—almost as good as a cow. The Cingalese woman or child who wants a draught of milk cuts through the stem of this not infrequent shrub, which at once supplies a bland semi-sweet liquid, nutritious to a remarkable extent, and agreeable as the produce of any dairy. Considering, moreover, that in Bengal and Assam alone there exist more than eighty varieties of Asclepiads, it may be gathered from our hurried glance at some among the vegetable vagaries of this family what odd and precious secrets yet remain to be discovered.

In fact, the tree and plant world is not yet half explored as regards what it might contribute to the service and comfort of mankind. Look at the part played in the world by tobacco, in which the United States last year spent no less than 256 million dollars! Consider the value of opium, morphia, quinine, tea, coffee, and cocoa. Remark the terrible force of strychnine, codeine, atropine, and those other subtle alkaloids which are at once, according to use, ferocious poisons or benignest drugs. These, and the like of what we know and use among extracts and essences, form but a small part of what Nature holds in her half-closed hand, ready to bestow upon patient investigators. Whoever has wandered in eastern jungles cannot but preserve recollection of scores of plants apparently well deserving notice. There is in Bengal, for example, a bush smelling like a musk rat, and another with an odour of goats, both of which are pretty sure to possess curious medical properties; there are the Dhavali, the juice of which is readymade gluc; and the Kadamba, with its tender and sweet flower clusters, also called the "Night Tree," because they have no scent by day, but are particularly fragrant in the darkness. There is, too, the excellent resin of the Sal Tree, as yet unknown to commerce, being kept by Hindoos to burn before their gods, and there exists in Bengal a tree called *Sindur*, the fruit of which bears Nature-made madder, in the form of red dust; while another, called *Agar* in Assam, supplies good paper from its bark without any paper-mill, as the Sugar Reed of the Brahmaputra banks furnishes a saccharine matter just like new honey; together with a host of other half-known but remarkable denizens of jungle and garden. We speak, of course, of chemical and medical knowledge rather than mere botanical classification. The latter has been, no doubt, more or less perfectly accomplished nowadays, although every traveller from the heart of Africa still brings back to the herbaria of science new specimens. But it is from the secret properties of this wonderful vegetable realm that the advancing art of healing will by-and-by obtain its chief sedative and therapeutic treasures.

SILICA—ARTIFICIAL MANURES.

MR. GILMOUR again honours me by a friendly critique, but I beg to take exception to his crediting me with concluding that the current crop removes the 1½ per cent. of soluble silica as given by Dr. Voelker in an analysis of a clay soil. What I stated (page 339) was that the soluble silica "certainly constitutes a part of that found in the current crop," which is very different from the whole. That, however, is not material to the issue—viz., that "removing the soluble silica from the soil and not replacing it ultimately exhausts the soil of its soluble silica." To that I adhere, and unless it be restored the soil must inevitably become exhausted on the "crop after crop" system of artificials. In the

second paragraph of Mr. Gilmour's communication we are favoured with some elaborate calculations to show that I conclude (which I do not) "that in eighty-nine years all the soluble silica will be gone, except we replace it." Assuming the current crop to remove the $1\frac{1}{2}$ per cent. of soluble silica, whence (I again ask) does the succeeding crop derive its supplies of soluble silica? None in a soluble form is returned to the soil upon the lines pursued by the gentleman growing corn "crop after crop," and yet we are asked to believe the supply of soluble silica abundant; indeed "silica is abundant in all soils," states Mr. Gilmour, quoting Johnston, but there is a great difference between soluble ($1\frac{1}{2}$ per cent.), and insoluble (70 or more per cent.). I asked (page 339) what is the value to the current crop of the 72, 69, and 77 per cent. of silica? For reply, we are told that silica, anywise the "inorganic substances on which plants live," are derived from minerals and rocks decomposed under the conjoined action of the oxygen, the carbonic acid, and the moisture of the atmosphere. (Johnston). "There is the rub." The "fragments of felspar and other minerals derived from the granitic and trap rocks, slaty, and other beds, are of no use productively through their insolubility, until brought under the "conjoined action of the oxygen, the carbonic acid, and the moisture of the atmosphere." Who in these days practises trenching and subsoiling? Who, indeed, cares to do more than "tickle the surface?" Yet Mr. Gilmour asks us to see what "a store of silica we have in the soil to gradually become soluble." Nature is lavish; silicon, after oxygen, is the most abundant of the elements, forming about 29 $\frac{1}{2}$ per cent. of the earth's crust.

Let us take a closer view of silica (oxide and acid of silicon, or silicon dioxide). Consider it as the anhydride of an acid and we get silicic acid or a compound of silicic anhydride with water, just as nitric acid is considered as a compound of nitric anhydride with water. Hydrogen silicates are obtained by the union with water, and a similar decomposition is effected by carbon, and these are soluble by potassium and sodium hydroxides forming corresponding silicates. The silicates (hydrogen and carbon) are also more or less soluble in (what Mr. Gilmour scrupulously avoids naming) ammonia, and in many acids. An analogous decomposition is constantly going on in Nature, causing the disintegration of rocks composed of metallic silicates.

Silica is rendered soluble naturally, and the supplies are increased by manuring, and breaking the surface soil inseparable from cultivation. "That is what I contend for," Mr. Gilmour may say, which I readily grant represents his case; but I contend that silica is inseparable from animal manure, and that it is not applied to any soil, and especially clay, without contributing through its soluble silica to the greater advantage of the current and succeeding crops than artificials, which, if they do contain soluble silica, the quantity is infinitesimal. In that sense, and that only, do I advise the application of farmyard manure, and in that—i.e., its soluble silica—I see its greater benefit to the cultivator. Who thought of separating all the phosphates, nitrates, &c., from farmyard manure, and giving those to Mr. Gilmour? The illustration is far-fetched and unreasonable. Cultivators need all the fertilising properties of farmyard manure, and have no cause to waste any, not even the silica, which Mr. Gilmour would have us believe valueless. If so, why have it in the soil? Lampadius formed the opinion that the earths contained in plants were merely the effects of vegetation, and altogether independent of the soil in which they grow. The experiment was as follows:—Five beds, 4 feet square by 1 foot in depth, each containing a pure earth—alumina, silica, lime, magnesia, garden mould, and each mixed with 8 lbs. of cowdung—were sown with Rye. The produce of each was separately reduced to ashes, and the same principles were found in them all, particularly a portion of silica. Whence came the silica in the bed of alumina? According to Lampadius it was the result of vegetation. But Saussure, like Ruckert, has shown that cowdung contains a portion of silica. Hence the substance which Lampadius could not account for but by means of vegetation he had supplied with his own hands. It is now known that the earths are partially soluble, some of them in pure water, and all of them with the aid of acids ("Science and Practice of Gardening," pages 81 and 82). This is evidence that silica is restored to the soil in farmyard manure.

I must also take exception to Mr. Gilmour indulging in a little sarcasm (albeit at his own expense) in respect of carting silica sixteen miles. Admitting Mr. Gilmour's fancy calculations in respect of the silica removed in hay, I fail to see that it has any correlation or analogy in respect of the silica in farmyard manure. There surely is a difference between sixteen loads of farmyard manure and a like quantity of road scrapings, for who is such a dolt as not to know the manurial value of the two substances? Sand is conveyed many miles to make mortar to build houses on the London clay, and manure is brought not only sixteen miles into Herts to grow hay, but over fifty to enrich the silicious soil of Beds and Hunts, for the growth of vegetables. "Ah! the silica is of no use," Mr. Gilmour may say in triumph, but I wish to know how it is that farmyard manure, guano, and soot exhibit in the crops more permanently sustained values over the silicates of artificials with their infinitesimal phosphates, and nitrates thrown in? But really, who can follow Mr. Gilmour's argument? In his first communication he stated I attributed the value of farmyard manure to its silica, and in his second he states I credit it to the "acids in the manure." Who would cart farmyard manure sixteen miles, or pay the carriage for twelve tons of manure over fifty miles, when we can get as much silica as is needed for two loads of hay in 300 lbs., or as much value from a few cwt. of artificials? Surely gardeners and farmers are not so stupid.

Then Mr. Gilmour fails to see how manuring grass land is as valuable from a hay-producing point of view in the second as in the first year

after manuring, which is to say the least an admittance on his part of inexperience in the application of solid manures. Granted the most value from the manure is wanted the first year in a hay crop, when would the application best be made? In autumn or in spring? If in autumn the manurial matter would be washed away by rains, therefore the hay crop following would derive correspondingly less benefit. Do not misunderstand me, I am following Mr. Gilmour. The contrary is the fact—autumn manuring meaning an early and thick growth of grass, and of a higher market and nutritive value than the results of spring manuring. If Mr. Gilmour is dubious let him examine any meadow manured in spring, and he may see large tufts of grass much in advance of the other, and from the places where the dung has been dropped in autumn. The rain has not washed it away but into the soil—alumina has retained the "soluble portion of the manure," especially "ammonia," which, as before stated, dissolves silica, therefore we get from an autumn manuring a higher quality hay than results of a spring application. For a supply of the market we need two kinds of hay—viz., short and soft for cows, and long and hard for horses. The difference in the values is considerable, from a growing point of view vital. By manuring in autumn or after the hay crop we secure a strong aftermath, and as this admits of more stock the ground is enriched by the manure directly returned to the soil as well as that given previously, which requires time to act and attack the mineral constituents, thereby inducing a greater disposition on the part of the plants to the production of seed than attends a spring manuring, with acceleration of the coarser and least nutritive grasses. So with the manuring in alternate years—a vigorous growth the first year, a strong aftermath and a thick growth the second. In that way grass land continues to yield excellent hay crops year after year, the whole, if not more, of the silica removed being restored to the soil, for, according to Mr. Gilmour, silica is of no value to man or animals except in the production of hair. He may well "not doubt that farmyard manure will keep land, in good heart," but I go beyond that and affirm that it improves it, just as Nature is progressive rather than retrograde. In all cases of progression it is when silica is restored to the soil, of which I shall only name an example, and it is that of grass land under permanent pasture, where the whole of the silica is returned directly to the soil, "feeding" matter enhancing the value of the manure as disintegrating mineral matter.

There is another matter in the fourth paragraph of our friend's communication that cannot be passed without observation. It is, "What is the value of silica alone?" He is kind enough to answer the question—viz., "silica in the ground acts as drainage, or combines and holds other more valuable constituents, as potash and lime, &c.," but it is of no use to animals, "they reject the whole of it." Is he not aware of its sanitary as well as nutritive value? In observing the doings of fowls I am amused at nothing so much as their frequenting the sand heap. But it is surely valuable to fowls, and the "authorities" tell how much soluble silica fowl manure contains, and which in all natural manures is proportionate to the ammonia. Let us return to the second paragraph of the criticism, where I find a not very complimentary allusion to road scrapings. I fear Mr. Gilmour has no experience of a clay soil, or he would have been aware of the potency of that material in making the soil porous, therefore favouring the absorption of ammonia and the decomposition resulting of the "conjoined action of the oxygen, the carbonic acid, and the moisture of the atmosphere," by insuring their greater freedom in attacking stubborn material. Mr. Gilmour may object—it has no relation to grass land. Very well. Let us apply it to grass. I have in view a field from which hay is taken year after year. The land has no manure except that resulting from the eating of the aftermath by cattle, or none that contains silica in any appreciable quantity. Now parts of this particular field are mossy and thin of grass, particularly Clover; in other parts it contains fair herbage with little or no moss. This field is dressed with road scrapings or sidings. I need not tell your readers that the best crop of hay is had from the ground dressed, and that the moss and bents prevail on the undressed.

Mr. Gilmour's explanation of using solid manure instead of artificial is singularly suggestive. His soil is sandy, and yet he adds more silica in a ton of manure than in a ton of artificial. This is remarkable reasoning, but as Mr. Gilmour does not believe in sand (he is a greater advocate of organic manure than I am) we can hardly expect him to look on alumina with favour. Nevertheless, it would be a most valuable addition to a sandy soil, indeed to a sandy soil only capable of growing Rye I have known a dressing of clay result in 60 bushels of Wheat per acre. I am thankful to know that he has no intention of making experiments with artificials on ground "made fertile with farmyard manure." It struck me forcibly that experiments conducted on such lines must be misleading, which is my apology for exceeding, as he insinuates, the limits of fair criticism. In justice I have to admit that I did not intend to convey the impression that farmyard manure was valuable simply because of its soluble silica and silica-dissolving acids," but for reasons given on page 339 I advised it in preference to artificials, and by that I am content to abide. The authorities I know are "dead" on silicates, and this after careful experiment by Mr. Lawes and others; but none of the authorities to which I have access have any fault to find with the silica as it obtains in any form of animal or vegetable manure, all admitting the great advantages of its employment and seeking by all the means science dictates to prevent its waste. Were the "authorities" more strictly followed we should see more covered yards, less manure in heaps having its virtue washed out by rain, and more hay to cut along with more and bigger corn stacks. If our little discussion

tend to that result—utilising the manure allowed to decompose any and everywhere but on or in the ground, to form enunbrances on highway, to clog ditches, stopping drains for want of scouring, it will not be altogether unprofitable. If it causes users of artificials to consider what is most suitable to apply in order to attain the best result in crop, much will have been effected towards the gardener and farmer competing with importers. Anyway, it cannot fail to effect some good, for there is no fear of any cultivator erring in applying farmyard manure whether it be for its "silica or its silica-dissolving acids." It is better to do so than do nothing, or what is as bad or worse, than to use artificials, which are, in Mr. Gilmour's phraseology, "patent exhausters;" or even to wait "until science gives us artificials, by means of which we can reap a double harvest or something like it every year." Is it not the do-nothing and the waiting that is the cause of the depression—looking on whilst the workers of other lands carry off the "plums?"

Permit me to say that I have no intention of returning to the subject. Mr. Gilmour is thanked for his courtesy and benefit which ever result from an exchange of views.—G. ABBEY.

MANCHESTER SHOW.

MAY 27TH.

THE Council of the Manchester Royal Botanical Society took a new departure this year in holding their annual and famous Whit-week Exhibition on ground close to the Botanic Gardens—where it has been held for so many years, and gained greater popularity than any other exhibition in the kingdom. Perhaps no other Society has had the courage to offer such liberal prizes as has been done at Manchester, or it may be that the financial supporters of other Societies have not been so numerous or liberal. It was said that the Exhibition would be a failure because the Council had not offered their usual liberal prizes, but the Exhibition was not inferior to any of its predecessors, either as regards the number and quality of the exhibits or the vast number of admirers that flocked to see them. In very many respects the Exhibition was even more beautiful than those we have been in the habit of seeing in the large exhibition house and tents in the Botanic Gardens. Instead of large "made up" specimen Orchids there were thousands of small and moderate-sized plants in grand health and profusely flowered. They were shown to very advantage by being arranged from the front entrance of a house fully 500 feet long and about 22 feet wide, built and glazed by Mr. Sam Dadds, on his dry patent system, for the occasion, and heated with one of his Champion Coil boilers. This structure was divided into three compartments, and suited admirably the requirements of the Exhibition, for the structure alone was imposing, but the view from the entrance was beautiful in the extreme. The remainder of the Exhibition was arranged in three large tents, so that visitors entering could go round the Exhibition and out at the front entrance again. No schedule of prizes was offered, but first, second, and third Queen's Jubilee medals. The first we understand are gold and the second silver.

The Orchids were the grand feature of the Exhibition. For a collection of Orchids two competitors entered. Messrs. Sander & Co., St. Albans, gained the first medal, and the Liverpool Horticultural Company (John Cowan), Garston, the second. Those from St. Albans were arranged in a tasteful manner on the left side of the entrance, with a few Palms in the background, and *Adiantum cuneatum* for a margin in front. This collection reached 27 yards down the house, and was about 2 yards wide. It comprised many plants of *Lælia purpurata*, some very fine forms; *Cattleyas* Mendeli, magnificent varieties; the same may be said of *C. Mossiae* and *C. Skinneri*. *Dendrobiums*, such as *Jamesianum*, and *Masdevallias*—Bull's Blood, Veitchiana, and other bright forms being conspicuous, while the stiffness of the *Cattleyas* and others of a similar nature were relieved by numerous graceful panicles of *Oncidiums* and other suitable Orchids for the occasion. *Cattleya Schroederæ* was conspicuous, and also that marvellous *Maxillaria Sanderiana*, with two of its large peculiarly coloured flowers. *Odontoglossum Alexandræ* was an important feature in this collection, there being hundreds of stout spikes, with large round flowers 3 or 4 inches across, some beautifully spotted and others deeply shaded with rose. Hybrids were represented by some hundreds of plants beautifully spotted; *O. Ruckertianum* was numerous, and one very large effective variety with a branched spike had no less than thirty-five flowers. Suspended from the roof along the entire length of this collection was no less than sixty-eight spikes of *Odontoglossum citrosum* and its rose coloured form. The Garston collection was also praiseworthy. It contained grand plants of *Lælia purpurata*, 3 feet through and profusely flowered, and a large and varied collection of different species and varieties. Many of the plants were dwarf and compact, and therefore did not possess that light picturesque effectiveness that characterised the St. Albans collection.

For a collection of *Cattleyas* O. E. Wrigley, Esq., Bury, gained the first-class medal, followed by A. J. A. Bruce, Charlton, who staged a neat collection with a groundwork of Ferns, for which the second medal was awarded. The Bury collection was staged on each side of the house amongst a groundwork of *Adiantum cuneatum*, and contained no less than 1400 blooms. They were all *Cattleya Mossiae*, and comprised some splendid varieties, but in spite of this they had a flat, heavy appearance. If they had been relieved with a few arching spikes of *Oncidium* or *Odontoglossum* the collection would have been far more effective. As a collection of *Cattleyas*, however, they well deserved the award made them, for the plants were in splendid health, and in the majority of cases they carried large, bold flowers.

Joseph Broome, Esq., Didsbury, contributed a very imposing collection of Orchids associated with Ferns, *Ericas*, *Azaleas*, Palms, and *Dracenas*, for which a first class medal was awarded. Noticeable in this collection was *Vanda teres* 4 feet high and 3 feet through, carrying no less than one hundred flowers and buds. A form of *Odontoglossum vexillarium* was also very handsome, with a particularly light lip, nearly white, with the upper portion of the flower of a rather dark shade of colour. Well grown and flowered *Cattleyas* in variety, *C. Mossiae* predominating, *Lælias*, and *Aerids* formed the principal features of this group. Messrs. Heath & Sons, Cheltenham, received the same award for a very similar group of Orchids, com-

prising *Odontoglossum Alexandræ*, *Cattleya Mossiae*, *Lælias*, *Cypripediums*, *C. concolor* being conspicuous; Palms formed the background, the groundwork being of Ferns and the front edge of *Panicum variegatum*. A first-class medal was also awarded to the Duke of Devonshire for a grand group of *Odontoglossum vexillarium*, which had a very delicate effect massed together in quantity. A second class medal was granted to John Heywood, Esq., Stretford, for a collection of Orchids, amongst them being *Cattleya Mossiae* with thirteen fine flowers; *C. Mendeli* with four flowers; *Lælia purpurata*, fourteen flowers; *Dendrobium Falconeri*, a grand plant on a round trellis 2 feet through and full of bloom; *Dendrobium thyrsiflorum*, with fourteen spikes; and *Cattleya Skinneri*, with fourteen spikes, bearing seven and eight flowers each.

Opposite the St. Albans collection of Orchids the large contribution of Tuberous Begonias by Messrs. John Laing & Co., Forest Hill, was one of the most striking features of the Exhibition. For this collection a first-class medal was awarded. The Begonias were arranged so as to slope from the back to the front; rising out of them gracefully was *Cocos Weddelliana* and a few choice *Caladiums*, while the front was edged with *Adiantum cuneatum* and *Isol-pis gracilis*. Some care must have been requisite in bringing the Begonias such a distance, for they were perfectly fresh. Amongst the Begonias were the following, for which first-class certificates were awarded. Mrs. Petch, single light shaded rose, a finely formed flower 3 inches across; M. Hardy, large dark bronze foliage and light shaded rose flowers of fair size; as a foliage variety this possessed flowers of a much larger size than is generally the case; Lillie, a very fine double rose coloured form with a centre several shades lighter. Another double form named *Alba rosea* was perhaps the most wonderful double variety ever raised or exhibited; it was of beautiful form, compact, and of a bright rose colour, while the centre was nearly pure white. Princess of Wales, single bright scarlet, had flowers of good shape, fully 6 inches across and of very good substance. *Althæaflora*, double, dark rose colour, very large and fine, with the guard petals very prominent. *Alba magna* was a very distinct double white, pure in colour and splendidly shaped. This variety will doubtless have a future before it for wiring for bouquet purposes, for which it is admirably suited, for it has the exact appearance of a double *Azalea*. A first-class certificate was also awarded to *Pteris cretica albo lineata* Mayi and *Azalea Souvenir de F. Vervane*, which was shown with the collection of Begonias.

Mr. B. S. Williams, Upper Holloway, London, staged a collection of choice stove and greenhouse flowering and foliage plants, with Orchids freely intermixed, for which a first-class medal was deservedly awarded. The collection throughout was in the same style as those so frequently seen from Holloway, and contained none but the best and choicest plants in the various sections. The collection as a whole was bright and imposing, and contained a number of the newest *Azaleas* in cultivation. *Amaryllis*, and choice forms of *Imantophyllum* were a feature, and stood out boldly in the group. Such Orchids as *Lælia purpurata*, *Dendrobium Dalhousianum*, *Cattleya Mossiae*, *Odontoglossum vexillarium*, *O. Pescatorei*, *O. Alexandræ*, *Masdevallias* and *Cypripediums* were in this collection in grand form. The Palms, which formed the background, were beautifully relieved with such plants as *Lilium Harrisii* and *Hydrangea paniculata grandiflora*. The following received first-class certificates:—*Pteris cretica albo lineata* Mayi, a light crested form of the old variety; *Adiantum schizophyllum*, *Azalea pæoniæflora*, *Davallia tenuifolia* Veitchi, and the new fumigating instrument, *Thaocaphore*.

Messrs. Cutbush & Sons, Highgate, London, staged a very fine group of miscellaneous plants. *Ericas* of various sorts formed the leading feature. *Azaleas* were very noteworthy; also a quantity of plants of the pretty *Leptospermum bullatum*, *Azalea mollis*, Oranges, Ferns, and a great variety of hardwooded greenhouse plants. A basket of the now seldom seen *Leschenaultia biloba* major was much admired; it is a pretty blue, and should be grown in every garden. This collection was awarded a second-class medal, and well deserved a first.

Messrs. R. P. Ker & Sons, Aigburth, was granted the same award for a beautiful collection of *Azaleas*, small plants in from 5 to 7-inch pots, but most profusely flowered, a few of the most striking being *Souvenir de Françoise Vervane*, *Madame Vander Cruysen*, *Roi d'Holland*, *Elise Leiber*, *Madame Annette Van Geert*, and *Theodore Reimers*. These were tastefully associated with moderate-sized Tree Ferns, Palms, and *Dracenas*. The same firm also staged a fine collection of *Calceolarias*.

C. Moseley, Esq., Rushmore, was honoured with a second class medal for collection of *Azaleas*, comprising good plants of *Duc de Nassau*, *Princess Alice*, and *Magnifica*. *Dendrobium nobile* 3 feet through was also fine, being full of bloom. *Erica eximia* superba was also very good, and the same remark may be made of *Davallia Mooreana*, and *Yucca filamentosa variegata*, a plant well grown in the neighbourhood of Manchester. Joseph Broome, Esq., secured a second class medal for a capital group of *Sarracenias* and *Nepenthes* associated with Ferns.

S. Schloss, Esq., Bowdon, was awarded a first-class medal for a large group of stove and greenhouse flowering and foliage plants. Some fine plants were included of *Bourainvillea glabra*, 4 feet through, and profusely flowered; *Clerodendron Balfourianum* was equally as large and fine; *Azalea Iveryana* was well bloomed, and *Anthurium Schertzerianum* was really grand, being fully 4 feet through, and crowded with its rich scarlet spathes. *Eucharis amazonica*, 5 feet through, was also very fine, and the same remark may be made of *Rhododendron Gibsoni*. *Gleichenia rupestris glaucescens*, 7 feet through, was in grand condition; *Anthurium crystallinum* was remarkably well grown; large plants of *Latania borbonica*, *Cibotium regale*, amongst others were staged. A first-class certificate was granted to a seedling *Anthurium Schertzerianum* named Schloss's variety, with large, very deep coloured spathe.

For a group of plants arranged for effect S. Baerlein, Esq., Didsbury was awarded a first class medal for the most tasteful arrangement we have seen for a long time. The centre was a raised mound nearly 4 feet high of *Adiantum cuneatum*, out of which rose a well furnished Palm, *Phoenix rupicola*. Amongst the Fern were spikes of *Gladioli* and single *Marguerites*. Two large plants of *Dracena Lindenii* was slightly raised opposite each other lengthwise of the tent, while in the opposite direction were two *Crotons*. The Fern, which formed the entire groundwork, was slightly raised about these plants, and towards the edge, being the lowest round the centre mound. The low or centre portion of the groundwork was dotted with a variegated Grass and the remainder with *Hydrangeas*, *Rhodanthes*, one

or two French Pelargoniums, and Saxifraga pyramidalis. The front edge was tastefully formed with Pansies, Myosotis, Coleus, small Caladiums, Sempervivums, and other small miscellaneous plants.

The next group in this tent was one contributed by Messrs. George Paul and Sons, for which a first-class medal was awarded. The central groundwork was formed of dwarf Roses in pots in capital condition of various sizes, and rising out of them were a number of standards with moderate sized heads. This group was margined with pans of Phlox Nelsoni, P. plenns, P. Vivid, Tiarella cordifolia, Ranunculus aconitifolius fl.-pl., pans of various Saxifragas, and other alpine plants in flower. At each corner of this group were several plants of tree Pæonies in pots carrying one or two fine blooms each. The material which composed this group is not generally seen associated together, but the effect was very pleasing. A pan of Astilbe japonica foliis purpureis was very striking, and was awarded a first-class certificate. This may be termed a purple-foliaged form of the old Spirea japonica. A second class medal was awarded John Harley, Esq., Stockport, for a group of Dracænas, Palms, Ericas, Zonals, Hydrangeas, Lilies, Ferns, and a general assortment of plants.

Roses were seen in several handsome groups, and in each instance the plants were well grown, clean, and carrying fine flowers. A first-class medal was deservedly awarded to James Brown, Esq., Manchester, for an excellent collection, including plants with fine flowers of Souvenir d'un Ami, Perle de Jardin, Jeanne Ducher, Sunset, Madame Willermoz, Marie Van Houtte, La France, Marguerite de Romans, Madame H. Jamain, Marie Banmann, Ulrich Brunnner, and others. A second class medal was given to W. J. Williams, Esq., Stockport, for thirty-five Hybrid and Tea varieties in pots.

Ferns were numerous and in splendid condition. A first-class medal was awarded to Messrs. W. & J. Birkenhead, Sale, Manchester, for a remarkably fine collection of hardy and exotic species, mostly small and moderate-sized plants, relieved by small-growing Tree Ferns. A Birly, Esq., was given the same award for a collection of hardy Ferns, mostly of large size and in grand condition.

Pelargoniums, both French, Fancy, and Zonals, were good, but only one collection was staged by Mr. C. Rylance, Ormskirk, for which the first-class medal was given. The back of the group contained a choice selection of hardy Ferns, shown in his usual style, while to the front was staged the Pelargoniums. All were good, but the most striking were Venus, Queen Bess, Kingston Beauty, Prince Leopold, Digby Grand, Evening Star, and Duchesse de Morney. Zonals: Lord Wellington, Softness, Mrs. Jacoby, Louisa, Mrs. Whitley, and Queen of Beauties. Messrs. Fisher, Son, and Sibray was granted a first-class certificate for Pelargonium Duchess of Teck, a handsome dwarf compact form.

Calceolarias and Pansies were staged in remarkably fine condition, for which third-class medals were principally awarded. For the former Mr. G. Ireland, Ashton-on-Mersey, H. Stevenson, Esq., Whalley Range, and H. D. Leake, Esq., were successful. For Pansies, Mrs. Mellor, Chorlton-cum-Hardy, Mr. John Blower, Pendlebury, and S. Robinson, Sale.

Cut flowers were represented by three or four tastefully arranged collections. For trusses of Zonal Pelargoniums Messrs. J. R. Pearson & Sons, Chilwell, Notts, was granted a third-class medal. The same award was granted to Mr. T. S. Ware, Tottenham, for a collection of Pæonies, which were very showy and much admired. Mr. James Mason, Manchester, was awarded a first-class medal for cut flowers arranged in bouquets, baskets, and wreaths, associated with Ferns, Palms, and Dracænas. A very pretty basket was formed of crimson Roses and white Lilac; a pretty bouquet was made of the same materials, others of Roses and Lily of the Valley, and others of Carnations, red and pink. A first-class medal was accorded A. Heine, Esq., for a collection of cut flowers of Orchids, arranged very tastefully in glasses with Adiantum cuneatum. The bunches of flowers were large, and not confined to one species or variety, which added materially to their effect. Mr. Wm. Owen, Hartford, had a third-class medal for a collection of Orchid blooms; these were shown in single flowers or trusses, and were principally Cattleyas.

Alpine and herbaceous plants were one of the features of this fine Exhibition. The group contributed by Messrs. James Dickson & Sons, Newton Nurseries, Chester, and for which a first-class medal was awarded, filled a moderate-sized tent—in fact, the group was 20 yards long and about 5 yards wide. It is indeed questionable if a finer group from any firm has ever before been staged. The whole of the plants were well grown, not drawn out weakly, and they had been arranged tastefully and with care. A few of the most prominent may with advantage be enumerated:—Cypripedium spectabile, C. Calceolus, C. pubescens, all good specimens; Gladiolus Blushing Bride, Rosy Gem, and The Bride, very fine; Lilium candidum, Harriisi, Szovitzianum, Trillium grandiflorum, Spirea Aruncus, Campanula Burghaltii, C. Van Houttei, Narcissus bicolor, Phlox Nelsoni, P. Vivid, and atropurpurea; Carnation Crimson Clove; Violas of sorts, Delphiniums of sorts, and many others.

Messrs. F. & A. Dickson & Sons, Chester, also exhibited a similar group, and although not so large it was well arranged and very effective; in fact, it contained only a choice selection of hardy species and varieties. Although not so large, therefore less imposing, it was no less beautiful or worthy of the high commendation that was accorded it in the form of a first-class medal the same as the group described above. The tree Pæonies in this collection was conspicuous, and amongst them P. Comtesse de Tudei, a large full rose form, was most noticeable. P. Baron d'Ales was also very fine, Iris iberica was beautiful, and the same may be said of Iris Susiana, Lilium Harriisi, large plants, were well done; Gentiana acaulis was fine, also Gladiolus The Bride, G. delicatissimus, G. Ne plus Ultra, Ixias in variety, and Narcissus Bulbocodium were very good. A third-class medal was given to R. P. Gill, Esq. (gardener, Mr. W. Plant), for a choice collection of Aquilegias, the following being granted first-class certificates:—Pearl, Purity, and Eleanor, all light and pure white forms, which were strikingly beautiful.

Fruit was more numerous and of much better quality than has before been the case at the Whit-week Exhibition. For a collection of fruit Mr. McIndoe, gardener to Sir Joseph Pease, Bart., Hutton Hall, gained the first-class medal. The collection comprised—Melons, Best of All, Her Ladyship's Favourite, and Scarlet Premier; Grapes, Madresfield Court, very good for the season; Peaches, B-legarde, Early Batrice, rather small; Hale's Early and Lord Napier Nectarines; Exquisite Oranges, Imperial

Lemons, very large; Black Tartarian, May Duke, Early Bigarreau Cherries, Brown Turkey Fig, Pearson's Plate Apple, and Catillac Pears, the two latter in capital condition for this season of the year. A third-class medal was awarded H. S. Woodcock, Esq., for twelve pots of Strawberries, which were in fair condition. A first-class certificate to Mr. Davies, gardener to Mrs. M. Ingram for a seedling Melon, a cross between Hero of Lockinge and Read's Scarlet flesh. A second class medal to J. F. Campbell, Esq., Woodseat, for three good well-finished bunches of Black Hamburg Grapes, two of Foster's Seedling, and one of Buckland Sweetwater, the two latter being very good. A basket of Melons were also shown by the same competitor. A first-class certificate was awarded Mr. Blair, gardener to the Duke of Sutherland, for a dish of Cherries and Sir Harry Strawberries, both being very fine. The same award to Mr. Thomas Hare, Grantham, for dishes of Elton Strawberry and Black Tartarian Cherries; Mr. Upjohn, gardener to the Earl of Esmere for twenty-four pots of Strawberries, Melons, and Peaches, the exhibits being good in each case. A third-class medal was given to Mr. Wallis, gardener to Rev. Walter Sneyd Keele Hall, for Black Hamburg Grapes and Buckland Sweetwater, both good, and Lady Downe's and Gros Colman, the two latter cut on the 29th of December last and which were in a good state of preservation. A third-class medal was deservedly given to T. Earnshaw, Esq., Totley Grange, for Black Hamburg and Muscat of Alexandria Grapes, very good and fairly well coloured considering the earliness of the season for Muscats.

It will be observed from the brief outline of the Exhibition that has just been brought to a close that it proved even superior to those held in the Gardens at Old Trafford, and this, too, without issuing a schedule. The Council and Mr. Bruce Findlay deserve every congratulation.

RICHARDIAS FROM CHRISTMAS TO EASTER.

AMONGST the many attractive plants employed in church decoration none surpasses the Richardias. It is impossible to misplace them, and their usefulness does not end here, as they are admirably adapted for wreath and cross making, and there is no kind of floral decoration of a social description which is not very much enhanced by the addition of massive creamy white Richardia spathes. Plants which will bloom at Christmas and Easter will also produce spathes before Christmas and after Easter, in fact from October until May; but we give those periods as being times when choice flowers are always in demand, and those who grow Richardias to flower then will be delighted with the result.

Some years ago we rather neglected our plants, and they flowered late in spring or summer when they were of no special value, but in considering how very useful they would be during the shortest days we resolved to grow them to flower then, and they have succeeded well. Our largest plant under the old style was a huge mass and planted out in a bed in the conservatory, but we had little or no control over it there. The plant in question was lifted in May, divided into two dozen pieces, and planted in a border in the kitchen garden. Each piece had a root and several long straggling leaves attached. As soon as planted a stake was put to these, but they soon withered, and before they had been out a fortnight every leaf was dead. The roots, however, were sound, and new leaves soon began to appear above ground. These were quite different to the old ones, as they were very dwarf, dark green, and robust. By September they were capital bushy plants. About the end of September, 1885, they were lifted, placed into 8-inch pots, and transferred to a close house for a short time until they began to root afresh, and by November they were established. They were then in a temperature of 60°, and began to throw up their spathes. By Christmas many of them were expanded, and others continued to open until the summer of 1886.

As they were still dwarf robust plants we did not place them out last year, but transferred them to wooden boxes 1 foot square and 1 foot in depth. They were placed in the open air in June, and grown in the sun all summer, but they were brought in under cover in October, and from then until now they have been constantly in bloom. There were many spathes out at Christmas, indeed they were so plentiful that we feared they would soon cease flowering, but they did not, as a temperature of 65° and plenty of liquid manure induced them to flower all winter. They have proved so satisfactory that we intend to follow this practice always, and we advise others to give it a trial. If those in possession of large plants in pots or boxes would begin to harden them a little at once, divide them and plant them out, they would secure a fine stock of plants by the autumn.

When planting them out they should be placed into good rich soil, and in a warm, sheltered, but sunny position. The soil should not be light as they prefer a stiff mixture to form clusters of roots in, and copious supplies of moisture must be given them in dry weather. Make no attempt to retain the old foliage, as it is useless compared with the dwarf strong leaves which are produced in the open air. In lifting them preserve the roots as much as possible, and place them in roomy pots or boxes in rich soil. If this is carefully done no leaves will be lost, nor will they change colour by it. Dwarf plants in small pots should be repotted or boxed early in May, and as soon as they are rooting in the new soil they should be placed in the open air and fully in the sun. The greatest mistake that can be made with them is to grow them in a close atmosphere in the shade, or pampered in any way. They may lose their large leaves when placed out at first, but this is an advantage. If no other position can be devoted to them place them in a frame with the lights off constantly. If the stock be small many little sucker-like growths will be found growing close to the old roots. These may be removed, planted in the open, and the old plants repotted or boxed. It is astonishing how long Richardia spathes will remain fresh when cut. We kept a group of them in a

large vase in a room last autumn for five weeks, and they never appear to greater advantage than when associated with their own foliage.—*J. MUIR, Margam.*

ROYAL METEOROLOGICAL SOCIETY.

THE usual monthly meeting of this Society was held on Wednesday, the 18th ult., at the Institution of Civil Engineers, 25, Great George Street, Mr. W. Ellis, F.R.A.S., President, in the chair. Mr. A. S. Marriott and Capt. Paul Mordovin were balloted for and duly elected Fellows of the Society.

The following papers were read:—1, "Broeken Spectres and the Bows that often Accompany them," by Mr. H. Sharpe. The author has collected all the original descriptions of the broeken spectre, which is really the shadow of the observer cast by the sun upon clouds. In some cases the shadow is surrounded by a bow, which the author shows is like the rainbow in colour and in the order of colours. The head of a shadow is sometimes surrounded by another sort of phenomenon touching the head, and which the author names the "glory."

2, "Results of Thermometrical Observations made at 4 feet, 170 feet, and 260 feet above the ground at Boston, Lincolnshire, 1882-86," by Mr. W. Marriott, F.R.Met.Soc. These observations were made on Boston Church Tower, which rises quite free from any obstructions, in a very flat country, to the height of 273 feet. A Stevenson screen, with a full set of thermometers, was placed 4 feet above the ground in the churchyard, a similar screen and thermometers was fixed above the belfry at 170 feet above the ground, while a Siemens' electrical thermometer was placed near the top of the tower, the cable being brought down inside and attached to a galvanometer on the floor of the church, where the indications were read off. The results showed that the mean maximum temperature at 4 feet exceeds that at 170 feet in every month of the year, the difference in the summer months amounting to 3°, while the mean minimum temperature at 4 feet differs but little from that at 170 feet, the tendency, however, being for the former to be slightly higher in the winter and lower in the summer than the latter. As the electrical thermometer was read usually in the daytime the results naturally showed that the temperature at 4 feet during the day hours was considerably warmer than at 260 feet. The author, however, detailed several sets of readings which had been made during the night as well as the day, the results from which were of a very interesting character.

3, "Snowstorm of March 14th and 15th, 1887, at Shirenewton Hall, near Chepstow," by Mr. E. J. Lowe, F.R.S.

During the evening the President made a presentation to Dr. J. W. Tripe of a silver tea and coffee service, which had been subscribed for by the Fellows in acknowledgment of the many services which he had rendered to the Society during a period of over thirty years.

HORTICULTURAL SHOWS.

THE following are the principal Shows to be held in June of which we have received particulars, and we shall be glad to have schedules of any Societies not included. Mr. E. Mawley has promised us a revised list of Rose Shows, that will shortly be published.

June 9th. South Essex, Leytonstone.

June 14th. Royal Horticultural Society. Committee Meeting.

June 15th. Royal Botanic Society, Regent's Park. Second Summer Show.

June 21st to 24th. Leeds.

June 23rd and 24th. Bury St. Edmunds.

June 28th. Royal Horticultural Society. Committee Meeting.

June 29th. Richmond and Croydon.

June 30th. East Gloucestershire (Roses).

KITCHEN GARDEN.

THE SEASON AND VEGETABLES.—We are now in June, and many will be looking for ample returns from their vegetable garden, but good young vegetables are by no means plentiful. The present season is one of the most backward we have ever had to contend with in the vegetable garden. No crops, however, are actually killed, and they are all in a promising condition, only very late. Many will therefore have to be satisfied with a small supply of vegetables as yet, as no cultivation can overcome weather difficulties. Most of our first sown Turnips have flowered without "bulbing," but the second sowing is now furnishing useful little roots. The first of the early Potatoes were dug from a south border on the Saturday previous to Whit Sunday. They are good in size, plentiful, but not very well matured. Ringleader Pea, sown in the same quarter in December last, is well covered with pods, but they are not sufficiently filled to be sent to the kitchen. All early Peas will now be benefited by a thorough supply of guano water.

OPEN AIR TOMATOES.—All who intend growing Tomatoes in the

open air this season should plant them out now. They should have a rich soil, and occupy a sunny position. In small gardens they may be planted against the dwelling house, and in large gardens there are always vacant corners which might very profitably be filled with Tomato plants. Walls at the base and in front of glass houses are capital places for Tomatoes, and where they cannot be trained upwards they may be placed at an angle. Spaces between fruit trees and vacancies on buildings of all kinds may be filled with them. We are often surprised that farmers, who have so many walls, do not try to utilise them with this valuable crop. Put the plants in very firmly, and water freely until growth is luxuriant. Keep the main stems free from side growths, and early and heavy crops will be the result.

RIDGE CUCUMBERS.—Small garden owners are rarely in possession of appliances to grow frame or house Cucumbers of the Telegraph type, but as Cucumbers of some kind are valued in all gardens, the ridge varieties are the best to grow. They are as hardy as a Vegetable Marrow, and do not require any more skill or means to grow them to perfection. They will succeed everywhere if put into rich soil in a sunny position. They are often planted on mounds of soil or manure, but they do equally well on any level border. They should be planted out at once, and they may be shaded and sheltered a little from sun and wind until growth begins. Peg the shoots down to the surface as soon as they begin growing, and never allow them to become crowded. The flavour of these Cucumbers is exceedingly good as a rule, and although some might object to them for a nobleman's table, they may be grown in quantity in large gardens for pickling purposes.

BRUSSELS SPROUTS.—Many fail with these because they are too late in the season in being planted. They do not form sprouts freely after November, and they should be planted in time to admit of the sprouts swelling well before that time. The present is an excellent time to plant, and all who have plants ready and vacant ground should give them attention at once. Where planting cannot be done until early Potatoes or some other crops are cleared off, do not allow the plants to be spoiled in the meantime by crowding, but thin them, and replant at a distance of 3 or 4 inches. This will make the plants very sturdy, and much superior to closely grown ones. A strong well-manured soil is the best for Brussels Sprouts, and they should be planted from 2 to 3 feet apart each way.

YOUNG ASPARAGUS PLANTS.—Those which were planted some weeks ago should now be pushing up freely, but if they are not doing so from drought or any other cause, supply them thoroughly with water heated to 85°. This may entail a little labour, but it is better to do it and secure a free growth and good plants, than allow half of them to die. As soon as the shoots are well above ground, spread a little short manure round each plant, and this will make a wonderful improvement on the roots before the end of the season.

CELERY.—Place out large quantities as quickly as the plants become ready. Always use plenty of manure with them. Do not crowd too much in the trenches; allow 8 or 10 inches between the plants. Plants that have been out for some time are now beginning to grow freely; but none of them will bear drought, and every one of them ought to be well watered until growth is considerably advanced. Where attention is given to this premature flowering will be unknown. Sow a little more seed to produce later plants. If glass is not available in the form of a handlight or frame sow in a warm spot in the open.

PARSNIPS.—These should be thinned now. Excellent roots will be produced if grown at a distance of 1 foot or 15 inches apart. Blanks may be filled or new plantations formed by dibbling in those which are drawn out. They may be transplanted very successfully, especially if this operation is performed in damp weather. Hoe between the rows as soon as thinned.

BEET.—It is not too late yet to sow seed, and early plants may be transplanted like the Parsnips. Where dark-leaved Beet is used in flower beds or borders, as it often is with good effect, the plants may be taken from the kitchen garden and planted in the ornamental quarters.

HERBS.—Plant Sweet Basil in a cold frame at a distance of 6 inches apart. It delights in shelter and a rich soil. Keep young seedling herbs now coming up free from weeds. Sage always grows freely from seed, but Thyme is not so certain, and where the seed has failed take a quantity of cuttings from the old plants and put them into sandy soil to root under a handlight. Mint is apt to become weedy, and it is a mistake to allow this, as if the weeds go to seed in this quarter they are sure to be blown elsewhere. In fact, a "dirty corner" often stocks a garden with weeds. All herbs may be cut freely now, as they will soon break into new growth again and become more bushy. Cut Chervil as soon as it flowers, and let it spring up from the base. We have not sown any seed of this herb for ten years, as it always reproduces itself.

ONIONS.—About half of our autumn-sown plants are showing flower. Many of them invariably do this after a severe winter, and all plants should be drawn for immediate use or as they are required, as they will never form profitable bulbs. Where large bulbs of this class are desired for exhibition begin to supply them liberally with liquid manure, and stir the surface frequently. When we want large bulbs for exhibition we always thin them well, but for kitchen use, and above all for keeping, we allow the bulbs to become crowded in the rows. They do not become so large in this way, but are much firmer and sounder than the large ones. We know a gamekeeper who is a capital Onion grower, and his secret is to sprinkle a little of Clay's fertiliser along each side of the rows when it rains during June and July.



THE FLOWER GARDEN AND PLEASURE GROUND.

Hints upon Bedding Out.—We are all naturally anxious to get the bedding plants off our hands, but we may easily err in completing the work too early. In warm localities the bulk of the plants are frequently put out during the last week in May or earlier; but where it is colder the subsoil also being heavy and cold, the first week in June is quite early enough for planting all the more delicate kinds. Even well hardened-off Zonal Pelargoniums when planted too early change to a brown unhealthy hue, and from this they do not quickly recover. *Calceolarias*, *Violas*, *Cineraria maritima*, *Lobelias*, and *Verbenas*, all being well hardened off, are not so easily injured, and the same remarks apply to *Stocks*, *Asters*, *Antirrhinums*, *Pentstemons*, *Zinnias*, *Phlox Drummondii*, *Dianthus*, and other half-hardy annuals. Fortunately, all unoccupied beds, and which have been laid up to the frosts, will be in good working condition, much better than usual in fact. The soil being naturally light, it may safely be forked over during the process of levelling, but heavy soils should be levelled with the spade and rake, so as to avoid bringing that which is almost unworkable to the surface. Soil brought from below to the surface is very apt to bind and then cracks badly, and gets into a worse plight when the necessary waterings are given. We prefer to plant on a perfectly level surface, the soil being well brought out to the edge of the beds or border. This shows up the neat edging plants that may be dibbled into the sloping edges, and is very much better than sinking them, only to be overtopped by the stronger growing inner plants. Where the beds are large and isolated they are, perhaps, more effective when the plants are arranged considerably higher in the middle, rounded off to the edges; but even this can be done without unduly raising the soil of the beds. But in the case of beds forming part of a design a flat surface of plants is most in character with the surroundings, as in this case the stronger growers do not overtop the others, thereby preserving the requisite evenness of the arrangement.

All such strong growers as Zonal Pelargoniums, *Calceolarias*, *Iresines*, *Verbenas*, and *Heliotropes* should be planted in a sloping direction, this admitting of their being easily and safely pegged down and spread abroad later on, for pegging down forms part of the system, and properly done it insures an even mass of colour. It is a mistake to introduce a great variety of plants into any bed forming part of a design. We prefer to fill the centres with a mass of rich colour, such as may be had from pink, scarlet, cerise, crimson, and other Pelargoniums; scarlet, white, and purple *Verbenas*; yellow and brown *Calceolarias*; blue *Heliotropes*, *Iresines*, and *Coleuses*, these being edged with a band, narrow or broad, according to the size of the beds, of dwarf *Ageratums*, dwarf variegated or yellow-leaved Pelargoniums, *Cineraria maritima*, *Polemonium caeruleum* variegatum, dwarf *Marigolds*, *Violas*, and other neat-growing plants; these in their turn being margined by some of the dwarf plants enumerated on page 384. Mixtures of two kinds, such as blue *Violas* and silver variegated golden or bronze-leaved Pelargoniums, *Verbena venosa* and *Veronica Andersonii* variegata, *Iresine Lindenii* and *Gazania splendens*, *Tuberous Begonias* and *Mesembryanthemum cordifolium* variegatum and the old variegated Pelargonium *Manglesi* and *Verbena venosa*, all having suitable edgings, are also very pretty, but they should be done well, or not at all.

Masses of one kind of plant, such as *Pentstemons*, *Antirrhinums*, seedling *Verbenas*, *Fuchsias*, *Petunias*, *Stocks*, *Asters*, *Gaillardias*, and *Dahlias*, are very effective in large isolated beds, and these may be varied with judicious mixtures of some or all of the foregoing. In hot and dry positions a mixture of seedling *Petunias* and *Marguerites* succeed admirably, and double Zonal Pelargoniums also grow and flower well in these positions. A centre of variegated *Maize* and *Salvia patens* surrounded by double or single *Zinnias*, outside of these a ring of yellow *Calceolarias*, and edged with autumn-flowering or East Lothian *Stocks*, would be an extremely pleasing arrangement. Yellow or White *Marguerites* dotted among either *Iresines* or *Beet*, edged with a bronze Zonal Pelargonium, and margined with blue *Lobelia*, might prove a good change, or *Abutilon Thompsonii* or *tessellatum* *Darwini* might be substituted for the *Marguerites*, and a silver variegated Pelargonium for the edging. A grand bed may be formed with single *Dahlias* kept pegged down and edged with *Cineraria maritima*.

No kind of plant ought to be expected to thrive year after year in the same beds unless some kind of manure is annually added to the soil; but as it is often a difficult matter to obtain any kind of solid manure for the purpose, excellent substitutes would be found in some of the various artificial manures advertised weekly in this paper. A sprinkling either added just prior to planting, or soon after the plants are in position and stirred in with a flat hoe, would soon have a beneficial effect, and such comparatively cheap fertilisers ought not to be denied any gardener. It requires a little practice in planting before it can be done quickly and neatly, and in many instances it is best to have some sort of line to work to. The outer edge and not the middle is the point to start from, the turf or Box edge being a good guide, and if the outer lines or rings are true it is a simple matter to fill in the centres. Long wooden compasses are very useful for marking the outer lines or circles, and a good workman can make a sufficiently true line with the back of a rake. Nothing should be planted with a dry ball of soil and roots, or otherwise the chances are no subsequent waterings will ever moisten them again. If the soil in the beds is dry, and this is very frequently the case when only just cleared of spring-flowering plants, well water it a few hours prior to planting, and this will render planting an easy matter. Plant all firmly, the trowel being first passed round each ball,

and the soil be then made firm with the handle. It is not advisable to level the soil about the plants at first, as in dry weather frequent waterings will be necessary; but when well established the flat hoe may be worked round the plants and the ground levelled. It being rather too early to plant *Iresines* and in some districts *Heliotropes*, spaces can be left for these to occupy later on. If they are crowded in boxes, directly a number of small pots are emptied these could be used for *Iresines*, *Coleuses*, and other late-struck plants, and if kept warm for a few days and then hardened off they will take more readily to the beds than if put out with little or no soil about the roots.

PLANT HOUSES.

Cyclamens.—Young plants raised from seed sown last August will now be ready for transferring from 3-inch pots into others 2 inches larger. The whole of the stock may not be in this condition, but those that are should be potted without delay, for if these plants are restricted at their roots during the early stages of growth they seldom do well afterwards. Some of the earliest plants will make grand specimens provided they are grown without a check, for in their present condition they will soon fill the 5-inch pots with roots, and may eventually be placed into 7-inch pots. By autumn these will make plants more than 1 foot across. Those that will be ready for 5-inch pots a few weeks hence will make excellent plants for various decorative purposes in that size. Those sown early in the spring and now in thumb pots may be placed into 3-inch pots. These also will be useful in spring in 4 and 5-inch pots. Keep the whole of the stock that has been raised from seed in a night temperature of 60° until artificial heat can be dispensed with, which will be as soon as the temperature named can be maintained without its aid. Give light shade for a few hours during bright sunshine, but full light must be admitted, for it is better to grow them without shade than that their foliage should be drawn weakly. Give liberal supplies of water as soon as they are rooting freely in the fresh compost. If once thoroughly dry they are severely checked for a long time. Syringe the plants freely during bright weather, and maintain a good circulation of air about them. The atmosphere of the house in which they are growing must be moist, as well as the material upon which they are standing. All plants that have flowered should be hardened in cold frames until they can be plunged outside. Be careful that the supply of water to the roots is not neglected. Do not preserve old plants except for seed-bearing, throw them away after they have flowered, and rely upon young stock raised from seed annually. These plants should be potted in a compost of good fibry loam two parts, one part of leaf mould, one-seventh of decayed manure, and a liberal quantity of coarse sand.

Kalosanthes.—Those required for early flowering may be grown in a light position in the greenhouse. Place those intended for succession in cold frames, gradually harden them, and place outside. The plants intended for flowering another year must not have their shoots pinched, for without the shoots are allowed to grow for one clear season they will not flower. Plants rooted in 3-inch pots in February, and the points pinched out afterwards, will have produced a good number of shoots; these may be placed into 6-inch pots. If the object is to grow good sized plants pinch them from time to time when the shoots have made a few inches of growth. By pinching and growing the plants on for the first season they will have before autumn a dozen shoots; freely-branching varieties will have considerably more. These may be grown in the greenhouse for some weeks longer, and then in cold frames. As soon as the truss of bloom is well prominent in the early ones feed them with artificial manure applied to the surface of the soil.

Chrysanthemums.—The earliest plants, whether bushes or standards, for decorative purposes or the production of large blooms, should now be thoroughly hardened and placed outside. Transfer all in this condition from the 6-inch pots in which they are now growing into 10-inch pots. The plants can be arranged in their summer quarters, and the shoots tied to large stakes. The late-flowering plants may now be placed into 6-inch pots and stood outside. More cuttings may now be rooted. If bushes are required insert five or six cuttings together, and pinch them once after they are rooted, and some beautiful dwarf decorative plants will be the result. Where tasteful arrangements are required during the winter, such varieties as *Elaine*, *James Salter*, *Early Red Dragon*, and other free-flowering varieties may be rooted singly in 3-inch pots, and afterwards transferred into 6-inch pots. All side shoots should be removed until they produce a bud and branch naturally in three shoots. Discontinue disbudding, and dwarf standards containing three or four fine blooms will be obtained. All that are placed in their flowering pots should have for a compost three parts good loam, one part decayed manure, one 6-inch potful of soot, and the same quantity of bonemeal to each barrowful of the compost. If the loam is very heavy a little sand may be needed. Water carefully for a time after potting, but syringe the plants twice on bright days.

Tree Carnations.—Place the earliest rooted into 6-inch pots, gradually hardened and stood outside. Later ones may be placed into 4-inch. If such kinds as *Souvenir de la Malmaison* were potted in early spring into 6-inch pots they will be ready for placing into 8 or 10-inch. If the object is to grow large plants for another season remove the flower spike and train the branches out towards the rim of the pots. If dwarf plants were selected to start with this operation will be found simple, and some extra large plants for another year will be produced.

Salvias.—The early plants now in 6-inch pots may be hardened ready for planting out. The shoots should be pinched when they have made

a few inches of growth to induce the plants to make dwarf compact bushes. For successional flowering more cuttings should be rooted, pinched, gradually hardened, and then planted outside.

THE BEE-KEEPER.

NOTES ON BEES.

SWARMING.

It is a mystery how bees can survive in so cold and protracted a season, much less making progress by breeding so as to be ready to swarm as many are. At Larkhall on Monday, the 16th ult., a "top" swarm (the first in the district) came off and was safely hived. The wintry weather compelled bee-keepers to resort to feeding both swarms and stocks. Neglect of this where bees are short of stores and natural supplies will have the effect of reducing the bees so as to render them unable to collect honey when the season comes. Greater attention to bees is required during May and the first half of June, and feeding does more good at these times than at any other time of the year. Natural brood-spreading has been general during fine days, but with the returning cold will be eaten out and so put back swarming and weaken stocks, unless doorways are contracted during its continuance and feeding resorted to so that the bees will keep up the heat of the hive.

SPRING FEEDING AND DWINDLING APIARIES.

Owing to the unfavourable season bees have had a hard struggle to exist, especially where the bees had an insufficient quantity of food. The great consumption during the mild October and November rendered many hives light, consequently the bees flew much, and so reduced the main body that they refused to feed during March and April, hence instead of being at swarming point as they ought to have been they are so weak that in many cases no swarms will be had this year. One old bee-keeper near me who has kept bees for upwards of fifty years tells me he never experienced so great a loss amongst bees, and does not expect a swarm, although about two months since I saw them they were in fairly good condition. He attributes the dwindling to short stores in autumn, and but for the extreme cold would all have fed in April and been good hives now. We are likely to hear less of "stimulating" bees during the spring months in the future than heretofore. Not only have many apiaries suffered, but individual hives experimented on by stimulating have dwindled. Many bee-keepers will, I hope, be more careful of their bees, and more cautious of their artificial treatment than they have been taught by inexperienced although enthusiastic bee-keepers.

SCIENTIFIC QUEEN BREEDING.

I can quite endorse "Hallamshire Bee-keeper's" opinion of the danger of cutting out queen cells too early from a well-bred hive if the after treatment tends in any way to retard hatching. Queens, workers, and drones are weakened if hatching has been delayed through a lower temperature than is absolutely necessary. I can also endorse his opinion to a great extent regarding the language of bees. That they can communicate their wishes and wants to one another by sound has long been a foregone conclusion. The earlier numbers of this Journal contain the opinions of different writers on the subject, myself amongst them. In the beginning of the present century the senses of bees and their general natural history was

much studied by eminent men, amongst whom was the Rev. Dr. Punbar. One or two of his observations are well worth reproducing, which I hope to be able to do at an early date.

While I agree with "H. B. K." on the points stated I do not agree with him on the question of smell being of a low order, or less than that of hearing, sight, or memory. I believe smell in the honey bee is a very highly developed sense. I have witnessed Ligurian bees making their appearance at a secluded spot a mile distant from their hives in two minutes after a hive was inverted. I have seen them nearly four miles from their hive lying dead in shop windows, attracted there by the smell of the sweets stored therein. I have removed hives a distance of twenty yards, and the flying bees passed other hives and found out their own. I could give hundreds of instances of a similar nature where smell was the only thing that led them to the spot. Some human beings are so offensive to bees that for my own and family's sake, as well as their own, I have kept them out of my garden. By the entry of a single individual into my garden I have seen the bees so irritated that I had to be extremely cautious until I had the bees subdued. The day before I wrote this I sprinkled a little syrup on the foliage of some plants within a few inches of some Primulas; in about six seconds after bees were in search of it, coming near and flying right over it. The scent of the sugar brought the bees there; but their sight caused them to dart from the syrup to the expanded Primroses, from which at the time nothing could be gathered.

My bees have taken an enormous quantity of peameal this season, and when at any time their supply was exhausted and the bees on the wing, it was with difficulty they could be kept out of the bag carried in the hand, attracted there by the smell. Some ten years ago when our bees were at the moors, and the inclemency of the weather had confined them to their hive so long as to consume all their honey and they were on the point of starving I visited them. Seeing they could not survive long, I obtained some sugar from the farmer and dissolved it over his kitchen fire. The smell of the dissolving syrup brought the bees in number about the chimney, and when I went out with the syrup I was surrounded with bees, so much so that hundreds flew right into the vessel containing the syrup. There are some combs containing a little honey in my garden, the smell of which has attracted the bees, and by their assiduity day after day have managed to remove a small bit of wood closing the only entrance and have cleared out the honey. How often, too, do we see bees finding their way into cupboards containing honey? In regard to the bees swarming round driven bees at a distance from other hives, it must be observed that bees of themselves have a very strong odour, especially when swarming or being driven, so much so that I have seen bees attracted to driven bees and actually caused them to disgorge the honey they had secured from the hive they were driven from. There are many things which attract bees by the odour they possess.—A LANARKSHIRE BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

Lucombe, Pince & Co., Exeter.—*Catalogue of Stove and Greenhouse Plants.*

John Laing & Co., Forest Hill, London, S.E.—*Catalogue of Novelties, Begonias, &c.; Jubilee List of Begonias, Orchids, Roses, &c., 1887.*

Edmund Philip Dixon, 57, Queen Street, Hull.—*Catalogue of New and Choice Plants, 1887.*

Dammann & Co., near Naples, Italy.—*Catalogue of Bulbs and Other Plants.*



•• All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

LATE INQUIRIES.—It is necessary to again remind correspondents that letters arriving on WEDNESDAY MORNING cannot be answered in the "next issue," which is then far advanced for press.

New Decorative Pelargoniums (W. B. Coventry).—Both varieties are good, but the one like Regalia is uncommonly fine, and is likely to be a very useful plant. By all means exhibit it at South Kensington, giving notice a day or two previously to Mr. A. F. Barron, Royal Horticultural Society, Chiswick. Of course you are not compelled to submit it to this Society before offering it for sale, but you would gain a better idea of its value by doing so first.

Fasciated Lilium auratum (Lilium).—The peculiarity you describe is termed fasciation, and is caused by the union of a number of stems, which takes place either in the buds or at a very early stage of growth; the tissue of contiguous parts grows together somewhat after the manner effected in grafting, and the result is a malformation that is not always unsightly, however. It is by no means uncommon in Lilies, and accidental examples occur in many other plants.

Green's Grass Edge Clipper (M. J.).—We have not had the opportunity of trying the implement to which your refer, but have observed that much depends on the aptitude of workmen in using some new implements as on the articles themselves as to whether they answer their purpose satisfactorily or not. The firm is of high standing, and would not send out an inferior article. Possibly the best thing you can do will be write for a list of testimonials, which can no doubt be supplied, and they will afford the information your desire.

Training and Pinching Peach Shoots (H. B.).—Where there is room for securing the growths to the wall or trellis without crowding the foliage, pinch off the axillary growths to the first leaf as soon as it is formed, and continue the practice as other growths issue. This should be done with the finger and thumb, and cannot be done too soon. If you err at all in tying in the shoots you had better do so by leaving too few than too many. More than half the Peach trees we see are overcrowded with growths in the summer—a mistake that is not made by the best cultivators.

Daffodils—Tacsonia (W. L. X.).—We have had Daffodils flowering in rich soil, but the foliage was well ripened in the sun and not removed till quite withered. If the leaves of your plants were not cut off too soon they were perhaps much shaded, and hence the absence of flowers this year. Possibly the house may be somewhat too cold for the Tacsonia, or the growths do not mature under the full influence of the sun. Dispose them thinly in order that that important object may be accomplished, and the plants will flower in a suitable house. If the growth is free stimulants would not be beneficial.

Strawberries for Market (H. S. E.).—The sorts you name are King of the Earlies, small; Sir J. Paxton, very good; Sir Charles Napier, grand but tender; Oxonian, capital; Hammonia, first-rate; La Constante, shy; Souvenir de Kieff, large and good cropper; Sir J. Falstaff, fine cropper; and Waltham Seedling, good. In Kent Vicomtesse Hericart de Thury and Sir J. Paxton are the varieties most largely grown. In sandy soil at Chertsey the jam-makers rely on Marguerite, the first, finest, and best; followed by Sir J. Paxton, Empress Eugenie, Alice Maud, British Queen, and Comte de Paris. Those we have found most profitable from a market point of view were Vicomtesse Hericart de Thury, Sir J. Paxton, President, Oxonian, McMahon, Loxford Hall Seedling, and Hammonia. Those we advise your making trial of, for varieties that succeed in one locality are not always satisfactory in others. We should also advise your trying President Delacour. For the light soil you could not perhaps have a better sort than President.

Grapes Failing (Constant Reader).—We are very sorry to see the withered bunches you have sent, caused by the shrinkage and decay of the stems above the shoulders. It is a pity you did not also send us fair samples of the growths and leaves, as these would have indicated the condition of the Vines and might have suggested the origin of the evil. In all probability, however, the border is too rich and the atmosphere of the house has been kept too close and damp; then on some occasions, when the bunches were showing, a large volume of air has been admitted at once, lowering the temperature, inducing excessive evaporation, and causing a chill. The stems are very soft and pale in colour, as if the border were soft and rich in nitrogenous matter instead of firm and containing a due

proportion of mineral substances such as lime and potash. There is obviously no cure for the affected bunches, and with a view to preventing others being similarly ruined we advise you to induce firm, stout growth by a judicious system of ventilation and the maintenance of drier yet genial and buoyant atmosphere, especially admitting air through the top ventilators early in the morning and increasing it by degrees just in advance of the rising temperature, never allowing the house to get so hot that it is necessary to lower the temperature. We should not be surprised if your house has not remained closed too long at some time, possibly on a Sunday morning. It is certain a mistake has been made in some way, but as you do not state the precise treatment to which the Vines have been subjected we are not in a position to point it out more clearly. Your allusion, however, to the "dropping of water from the glass" is sufficient evidence of an excess of moisture at a critical time. There ought not to have been any such accumulation and condensation.

Manuring Fruit Trees (H. W. G.).—Mr. Walter Kruse, to whom you refer, writes as follows on this subject:—"I still adhere to the system of surface culture, for, from the heavy crops which I have had, I have every reason to believe it to be the best. Like other growers, I have been suffering from low prices; and when, as is sometimes the case, the cost of gathering, carriage, and marketing comes to as much as is received for the fruit, there is nothing left for the cost of cultivation under any system, and of course the fruit is produced at a loss. We should not think much of this happening now and then if prices at other times were so high that they afforded a compensation, but nowadays they never go high. If fruit continues to sell as badly as it did last year many will have to give up growing it, and only those who are the best cultivators and who occupy the best soil will be able to hang on until, by the decrease of fruit grown, matters are righted. I do not see a prospect of things being very much better until agriculture improves as a whole, for if fruit-growers had a good year or two farmers would immediately plant so much ground that in a short time prices would be down again. Last year bush fruits on a great extent of ground were grubbed, especially where situated under standard trees, and the ground was laid down to grass. Meanwhile I believe it to be the best course to endeavour to get as much off the ground as possible, for the rent and cost of labour in cultivation are as much for a poor crop as a good one and it is the labour which is the most costly item where horses cannot be used. When the roots of trees are not disturbed, and other things are favourable, the fruit sets very thickly, and I apply plenty of manure to fill it out and keep the trees healthy. Now that my ground is in good heart I find £6 or £7 worth of manure yearly per acre sufficient for this purpose, but many of the trees are young, and more manure will be required when they are older. When the ground is not dug care should be taken to kill the weeds when in a seedling state, as if the ground is allowed to become a mat of weeds hoeing is very costly. If the ground is kept very clean the first year or two, so that seeds do not fall, the labour will be much lighter afterwards. I was by no means the first to advocate not digging among the roots of fruit trees. In this neighbourhood a good deal of ground has not been dug the last two years."

The Origin of Lime (Student).—You ask a question that is not very easy to answer. Kane, in his "Elements of Chemistry," says:—"Notwithstanding the immense quantities of carbonate of lime which are found constituting a great proportion of the surface of the globe, as for instance, the whole centre of Ireland is one vast plain of limestone, and in that as well as other forms—chalk, marble, &c.—it is equally extensive in most other countries, it is questionable whether lime should not be looked upon as rather a characteristic of the animal than of the mineral kingdom of Nature. The bony or testaceous skeleton, by which the softer portions of the animal frame are attached, is always found to consist of lime united either with carbonic or phosphoric acids, and the diversity of chemical composition in this respect is found to coincide in a remarkable degree with the most natural physiological classification. The skeletons of the vertebrated animals consist principally of phosphate of lime, whilst in the shells of the invertebrate animals the carbonate of lime is the prevalent component. The teeth also consist of phosphate of lime. In all these cases the phosphate of lime is associated with fluoride of calcium, just as occurs in the native phosphate, the mineral apatite. Now it is remarkable that all the great geological formations which contain carbonate of lime are found to consist of the aggregated skeletons (shells) of myriads of the tribes of invertebrate animals which had existed in some former period of the world's history. From the densest and hardest limestone to the softest chalk, the entire mass resolves itself ultimately into a congeries of animal remains, and hence the great supply of lime in the mineral state arises from the destruction of its animal sources. Even those crystalline marbles in which no organic remains can be traced appear destitute of them only from having been subjected, by volcanic heat or otherwise, to the influence of causes which have gradually rendered the texture of the mass completely uniform. The lime which exists in Nature must, therefore, be looked upon as being continually in a state of passage between the organised and the inorganic kingdoms. The plants which grow upon the soil take up, by dissolution in their juices, salts of lime, which pass into the substance of the animal which feeds upon them, and accumulating in its system affords materials for the proper development of the skeleton. When the animal dies the materials of its tissues either serve for the nutrition of some other animal or, being totally decomposed, its elements return to the mineral kingdom, to be in after ages the subject of similar alternations."

Potato Onions (E. O. M.).—The Potato or Underground Onion (*Allium aggregatum*) produces a cluster of bulbs or offsets, in number from two to twelve, and even more, uniformly beneath the surface of the soil. From being first introduced to public notice in Scotland by Captain Burns of Edinburgh, it is there also known as the Burn Onion. There evidently appear to be two varieties of this vegetable, one of which bears bulbs on the summit of its stems, like the Tree Onion, and the other never throwing up flower stems at all. One variety is much larger than the other, and this vegetates again as soon as ripe. Both varieties are best propagated by offsets of the root of moderate size, for if those are employed which the one variety produces on the summit of its stems they seldom do more than increase in size the first year, but are prolific the next; this also occurs if very small offsets of the root are employed. They may be plauted during

October or November, or as early in the spring as the season will allow, but not later than April. In the west of England, assisted by their genial climate, they plant on the shortest and take up on the longest day. They are either to be inserted in drills or by a blunt dibble 8 inches apart each way, not buried entirely, but the top of the offset just level with the surface. Mr. Maher, when gardener at Arundel Castle, placed the sets on the surface, covering them with leaf mould, rotten dung, or other light compost. The beds they are grown in are better not more than 4 feet wide for the convenience of cultivation. The practice of earthing over them when the stems have grown up is unnatural, and by so doing the bulbs are blanched and prevented ripening perfectly, on which their keeping so much depends. So far from following this plan, Mr. Wedgewood of Betley recommends the earth always to be cleared away down to the ring from whence the fibres spring as soon as the leaves have attained their full size and begin to be brown at the top, so that a kind of basin is formed round the bulb. As soon as they vegetate they intimate the number of offsets that will be produced by showing a shoot for each. They attain their full growth towards the end of July, and become completely ripe early in September. For immediate use they may be taken up as they ripen; but for keeping, a little before they attain perfect maturity.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (A. W. K.).—*Celsia Arcturus*. (J. J. T., Herts).—The shrub is *Cerasus Mahaleb*; the seedling is too immature to be recognised, perhaps it is a *Delphinium*. (C. H. S.).—1, Insufficient; 2, *Hebelinium ianthinum*; 3, *Pteris umhrosa*; 4, *Campyloneuron angustifolium*; 5, *Begonia ferruginea*; 6, *Selaginella Willdenovi*.

COVENT GARDEN MARKET.—JUNE 1ST.

No alteration. Business steady.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, $\frac{1}{2}$ sieve	2	0 to 5	0	Oranges, per 100	6 0 to 12 0
" Nova Scotia and				Peaches, dozen	15 0 to 11 0
Canada, barrel 10 0	13	0		Pears, dozen	1 0 to 2 0
Cherries, $\frac{1}{2}$ sieve	0	0	0	Pine Apples, English,	
Cobs, 100 lbs.	50	0	55	per lb.	1 6 to 2 0
Figs, dozen	6	0	8	Plums, $\frac{1}{2}$ sieve	0 0 to 0 0
Grapes, per lb.	2	6	4	St. Michael Pine, each	2 0 to 5 0
Lemons, case	10	0	15	Strawberries, per lb.	3 0 to 6 0
Melon, each	3	0	0		

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, dozen	1	0 to 2	0	Lettuce, dozen	1 0 to 1 6
Asparagus, bundle	1	6	4	Musbrooms, punnet	0 6 to 1 0
Beans, Kidney, per lb. ..	1	3	0	Mustard and Cress, punt.	0 2 to 0 6
Beet, Red, dozen	1	0	2	Onions, bunch	0 3 to 0 6
Broccoli, bundle	0	0	0	Parsley, dozen bunches	2 0 to 3 0
Brussels Sprout, $\frac{1}{2}$ sieve	0	0	0	Parsnips, dozen	1 0 to 0 0
Cabbage, dozen	1	6	0	Potatoes, per cwt.	4 0 to 5 0
Capicums, per 100	1	6	2	" Kidney, per cwt.	4 0 to 0 0
Carrots, bunch	0	4	0	Rhubarb, bundle	0 2 to 0 0
Cauliflowers, dozen	3	0	4	Salsify, bundle	1 0 to 1 8
Celery, bundle	1	6	2	Scorzoner, bundle	1 6 to 0 0
Coleworts, doz. bunches	2	0	4	Seakale, basket	1 6 to 0 0
Cucumbers, each	0	4	0	Shallots, per lb.	0 3 to 0 0
Endive, dozen	1	0	2	Spinach, bushel	3 0 to 4 0
Herbs, bunch	0	2	0	Tomatoes, per lb.	1 0 to 1 6
Leeks, bunch	0	8	0	Turrips, bunch	0 4 to 0 6

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, dozen ..	8	0 to 12	0	Fuchsia, dozen	6 0 to 9 0
Arbor vitae (golden) dozen	6	0	9	Genista, dozen	0 6 to 0 0
" (common), dozen ..	6	0	12	Geranium (Ivy), dozen	4 0 to 6 0
Azalea, dozen	18	0	30	Hydrangea, dozen	9 0 to 12 0
Begonias, dozen	4	0	9	Lilies Valley, dozen ..	9 0 to 18 0
Calceolaria, dozen	6	0	12	Lilium longiflorum, doz.	24 0 to 36 0
Cineraria, dozen	4	0	8	Lobelia, dozen	4 0 to 6 0
Dracena terminalis, doz.	30	0	60	Marguerite Daisy, dozen	6 0 to 12 0
" viridis, dozen	12	0	24	Mignonette, dozen	4 0 to 9 0
Erica, various, dozen ..	13	0	42	Musk, dozen	3 0 to 6 0
Eucynthus, in var., dozen	6	0	18	Myrtles, dozen	6 0 to 12 0
Evergreens, in var., dozen	6	0	24	Palms, in var., each ..	2 6 to 21 0
Ferns, in variety, dozen	4	0	18	Pelargoniums, dozen ..	6 0 to 15 0
Ficus elastica, each ..	1	6	7	" scarlet, dozen	3 0 to 9 0
Foliage Plants, var., each	2	0	10	Splæa, dozen	6 0 to 12 0

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Abutilons, 12 bunches ..	2	0 to 4	0	Marguerites, 12 bunches	2 0 to 6 0
Anemones, 12 bunches ..	2	0	4	Mignonette, 12 bunches	4 0 to 6 0
Aran Lilies, 12 blooms ..	3	0	6	Myosotis, 12 bunches ..	3 0 to 6 0
Azalea, 12 sprays	0	6	1	Narciss, 12 bunches ..	2 0 to 6 0
Bluebells, 12 bunches ..	1	0	1	" White, English, beh.	0 0 to 0 0
Bouvardias, bunch	0	6	1	Pelargoniums, 12 trusses	0 9 to 1 0
Camellias, blooms	1	0	3	" scarlet, 12 trusses	0 4 to 0 6
Carnations, 12 blooms ..	1	0	2	Poinsettia, 12 blooms ..	0 0 to 0 0
" 12 bunches	0	0	0	Primroses, 12 bunches ..	0 6 to 0 8
Cornflower, 12 bunches ..	0	0	0	Primula (single), bunch.	0 0 to 0 0
Cowslips, 12 bunches ..	0	6	1	" (double), bunch	0 9 to 1 0
Eucharis, dozen	4	0	6	Polyanthus, 12 bunches ..	2 0 to 4 0
Gardenias, 12 blooms ..	1	6	3	Ranunculus, 12 bunches	3 0 to 6 0
Hyacinths, Roman, 12				Roses, 12 bunches	0 0 to 0 0
sprays	0	0	0	" (Indoor), dozen	0 9 to 1 6
Ixia, 12 bunches	2	0	4	" Tea, dozen	1 6 to 3 0
Lapageria, white, 12 blms.	0	0	0	" red dozen	2 0 to 4 0
Lilium longiflorum, 12				Stephanotis, 12 sprays	2 0 to 4 0
blooms	3	0	6	Tropæolum, 12 bunches	1 0 to 2 0
Lilac (white), French,				Tuberose, 12 blooms ..	0 9 to 1 0
bunch	4	0	7	Tulips, dozen blooms ..	0 2 to 0 4
Lily of Valley, 12 sprays	0	9	1	Violets, 12 bunches ..	0 4 to 0 6
" 12 bunches	2	0	6	" Czar, French, bunch	0 0 to 0 0



OUR CEREAL CROPS.

WHEAT.

GIVEN land in a high state of cultivation, carefully selected seed, and skilful management, it is possible to produce a crop of Wheat yielding 40 bushels per acre, and a proportionate increase in bulk of straw. If this be so, ought we to rest content with an average of 29 bushels per acre? We answer, Certainly not, and we are not speaking without book, for we long ago proved for our own guidance that fully 40 bushels an acre could be grown even in the thin and naturally poor soil of Sussex on the Hastings Sand formation. This was done in two ways, and the result in both cases was equally satisfactory, but the cost was infinitely greater in the first instance. We may explain that a foul field was left for a long fallow, and after it had been ploughed and harrowed repeatedly till it was clean, a dressing of lime fresh from the kiln was given and ploughed in, and then in due course came a heavy dressing of farmyard manure early in the autumn, the ploughing-in of which was followed by the growing of a selected sample of Square-head Wheat. The crop proved a fine one, the yield being upwards of 40 bushels, but then it must not be forgotten that a year had been lost, and in a fair calculation the rent for the lost or long fallow year must be deducted from the returns of the next three or four years, according to the system or course in force upon a farm under the old system of rotation crops and a fallow.

In the second, and we may add for many years subsequently, we used chemical manures under the guidance of Professor Jamieson, avoiding the heavy outlay and loss involved in the manufacture and use of farmyard manure, and obtaining results even superior to any we have achieved or met with from the use of farmyard manure.

The whole matter is one of national importance, and we strongly commend it to the notice of local agricultural societies. We want more light thrown upon it, and cannot insist too strongly upon the high importance of a better general knowledge of all that goes to the production of the best possible results in Wheat culture. True it is that there is a more general inquiry after improved sorts of Wheat, but as we have already explained, it is quite in vain to procure the best seed unless we bring the land into the best condition for its culture. Drainage, cleanliness, and fertility must all have attention, and yet each detail of culture must be an embodiment of economy with utility.

We may well inquire why Wheat growing should be considered a doubtful matter in the future of farming in this country. Living as we do in the heart of the great corn-growing district of East Anglia, we know that as corn farms fall in they cannot under ordinary circumstances be re-let for an higher average rent than 15s. an acre. Taking this rent then as our basis, let us make a reasonable and fair calculation of what is yet possible in Wheat culture—

	£	s.	d.
Rent per acre .. ..	...	...	0 15 0
Taxes and tithes .. ..	...	...	0 10 0
Manure .. ..	...	...	2 0 0
Seed, cultivation, &c. ..	...	...	3 17 0
	£	7	2 0

Compare then with this outlay the possible amount to be obtained for grain and straw per acre—

	£	s.	d.
40 bushels or 5 quarters at 30s. ...	7	10	0
Straw (a low average)... ..	3	0	0
	£10	10	0

Now, we have known an acre of Wheat straw to realise as much as £5, and if we are to have Wheat back again to 40s. a quarter we may see it is possible to realise £10 an acre for grain: add to this £5 for straw, and we have a total of £15, or a margin of profit over expenses of £7 18s. Overstated? Judge for yourselves, readers, for we certainly have no wish or intention to overstate or mislead you. What we are most anxious for is to induce you to strive for all possible improvement in your practice without any extravagant outlay in any way. Do pray give heed to the vital importance of dressing the land with such manures, and only such, as are really good or rather best for the Wheat. While striving to acquire such knowledge, pray stick to the sheep, pass them over all the land in folds, and only in folds. No better promise of a full crop have we among any of our Wheat fields than where we folded sheep last autumn. Keep the "Golden Hoofs" upon the land, plough in as many green crops as you can, store the land with fertility, turning to chemical manures as a safe and sound source of fertility, but only using what you are obliged to of it, yet in any case giving preference to it over farmyard manure.

WORK ON THE HOME FARM.

Growth goes on somewhat slowly, but there is fair promise of a year of abundance, for the corn plant is a good one, layers are excellent, mixed Grasses and Clovers, Clover alone, Sainfoin, Lucerne, Rye Grass all are good, and most are already so forward in growth as to be useful for a variety of purposes. Cows, horses, sheep, and pigs all have plenty of green food now, and the horses will require no corn unless they have long journeys or exceptionally hard work. We like our farm horses to be kept in good condition, but not to be too fat for active work. We employ upwards of twenty horsemen, each having charge of a pair of horses, and while we like to encourage a healthy spirit of rivalry among them, due care has to be taken to prevent an extravagant use of corn and other food. Corn is of course given out by measure, the regular allowance being 2 bushels per horse weekly, with a liberal allowance of chaff and roots while they are in season. But when green food becomes plentiful horses employed for ordinary farm work require nothing else, and soon become sleek. We are cautious not to turn horses out upon pasture at night till summer weather sets in; but then it is a good plan to have a lodge and yard in every pasture, so as to afford shelter for any animals that may be turned out to graze. Shelter and warmth are highly important factors in keeping animals healthy. Another matter to which we give particular attention is to see that every horse has a condition powder occasionally, and a lump of rock salt to lick. It is by attention to such trifles that we keep them healthy and stave off illness. Some of our young horses are being broken to harness and gradually brought into work, so as to render them useful by harvest. They are not kept steadily at work from the first, but are so used as not to check growth, for if a two-year-old is overworked growth is stunted and the horse spoilt. The foals are doing well, the whole of them being strong and healthy, and they are now out on pasture with the mares every day. We breed chiefly for home purposes, some young horses being broken to fill vacancies in the various teams every spring, and at three years any surplus stock can be disposed of to best advantage, and really good horses still command a fair price.

POTASH ON LIGHT AND HEAVY SOILS.

IN your "Home Farm" article, 10th March, 1887, p. 204, attention is directed to the extraordinary results following the use of potash, &c., by Mr. Cooke at Flitcham Abbey on a crop of Barley. It would be interesting to know the character of the land experimented on. I have seen it stated elsewhere in the Journal that clay soils are supposed to be little benefited by the use of potash, of which they usually contain a good stock, while lighter soils need it. If the Flitcham Abbey soil is heavy the theories of some people are unsound, and the result of the experiments will be further emphasising.—H. W. G.

[On this subject Mr. Cooke obligingly writes:—"The character of the soil which produced such singular results from the absence of potash in the manure for Barley was a few inches only of lightish surface soil in a great depth of chalk. In considering the peculiarities of the results of the potash in this particular case, it must be remembered that *white Turnips* were previously grown on the experimental area, and all drawn from the land; of course, a very exhaustive treatment, as these roots

extract more potash than Swedes, and they were grown with 3 cwt. of superphosphates only. The previous treatment of the land had been the Norfolk four-course system. There is no doubt, I should think, that many soils of this character must require much more potash than is ever given them, as there is little enough of it in an ordinary chalk subsoil. Nowhere, however, has attention been drawn to such deficiency, I believe, until the remarkable results of numerous experiments of my own induced me to call attention to the subject. These experiments embrace several in Clover, Sainfoin, and Swedes, and at this moment the lot which showed such good results from the application of potash to the Barley last year is now covered with a fine healthy plant of Clover, whilst there is scarcely a leaf of Clover to be seen on plots which was almost a failure in Barley. I think it very important always to say, when questioned on this subject by practical farmers, that I believe insufficiency of potash in any soil to meet the requirements of the Barley crop is *always* shown in the yellow and sickly appearance of the first blades of the plant which show above ground. This appearance is seldom seen even in the Flitcham land after sheep folding, *except in the furrows*, which are ploughed deeper. Clay soils are seldom benefited by the use of potash in ordinary farming, as abundance of this particular plant-food is usually provided in them. Nearly all light soils are more or less deficient in potash in proportion to clay soils, but the great majority even of light soils are not greatly benefited by the use of potash in *ordinary* cropping. Careful experiment in all cases is the only absolutely reliable test of the requirements of crops in any soil."]

COUNTRY EGGS.

I AM sure the farmer who reads the articles on agriculture in your valuable Journal, and acts according to the practical instructions given weekly therein, will be pounds richer and much wiser at the end of the season than the one who does not. I observed some time since that your correspondent touched upon farmers and their poultry. Many farmers, I believe, keep poultry and dispose of them as well as their produce at an unremunerative price. A proper system of organisation amongst farmers would not only benefit themselves, but the public as well, both in the butter, egg, and poultry trade. During the whole of last summer fresh butter never sold for less here than 1s. 4d. per lb., while in many districts between this and Carlisle butter sold retail at 9d. and 10d. per lb. Eggs, too, were as variable in price.

I was in conversation lately with a farmer who has a large farm in the Highlands. He told me that 4d. per dozen was all that they could realise for their eggs, although this farm is situated within eight hours' sail of Glasgow. The low price, he said, was simply because they were Highland eggs. Are Highland eggs of an inferior quality? I am sure not. Doubtless some are spoiled by the way and length of time they are packed in musty straw, which gives them a bad flavour; but if they could be collected and sent to market within a few days of being laid I think they would then be regarded as first-class country eggs, and ought to realise a good price. The mode of packing, too, ought to be changed. For example, if crates of a handy size were made fitted with trays having the patent egg-holders there would be neither bad flavour communicated to the eggs nor risk in their transit, while the weight of the package would be reduced to the lowest. There is no place better adapted for poultry than the Highlands, and at no place can they be maintained as cheaply. But, as I have said, there must be action taken by and among themselves if they have a desire to make the most of the many advantages they possess over many others who have to make a living under great restriction than the Highland farmers and crofters are subjected to.

I hope these remarks will fall into the hands of someone willing and able to set the ball rolling in the right direction, and perhaps some agricultural correspondent with an abler pen than mine will throw some light on the subject.—A NORTHERN CORRESPONDENT.

METEOROLOGICAL OBSERVATIONS.


CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain	
1887. May.		Barometer at 32° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature		
			Dry.	Wet.			Max.	Min.	In sun.		On grass
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
Sunday	22	29.820	46.8	42.5	N.W.	48.2	54.9	37.2	103.2	33.5	0.036
Monday	23	30.046	50.5	45.4	W.	48.3	62.1	38.3	109.4	33.9	
Tuesday	24	30.2	57.6	53.1	N.W.	49.2	61.7	45.4	84.7	40.9	0.013
Wednesday	25	30.237	49.9	44.9	N.	49.6	59.2	44.2	98.6	41.3	0.019
Thursday	26	30.150	57.6	52.1	N.	50.2	67.5	44.6	109.8	40.9	0.151
Friday	27	29.960	48.1	47.3	N.W.	51.3	53.7	43.8	65.6	43.2	0.097
Saturday	28	29.9.3	51.3	50.2	N.W.	50.7	57.5	47.1	87.1	46.1	0.032
		30.048	51.7	48.2		49.6	59.5	42.9	94.1	40.0	0.348

REMARKS.

22nd.—Cloudy morning; showers later.
 23rd.—Generally bright, but cloudy at times.
 24th.—Bright morning; cloudy afternoon; showery evening.
 25th.—Dull, with spots of rain.
 26th.—Bright and warm.
 27th.—Showery and dull.
 28th.—Overcast morning; fine afternoon, but not much sunshine; rain at night.
 A cold and generally dull and damp week. Mean temperature almost identical with that of the preceding week, and about 6° below the average.—G. J. SYMONS.



COMING EVENTS

9	TH	Leyton Flower Show.
10	F	
11	S	
12	SUN	1ST SUNDAY AFTER TRINITY.
13	M	
14	TU	Royal Horticultural Society. Fruit and Floral Committees at 11 A.M.
15	W	Royal Botanic Society's Show. York Gala (three days).

THINNING HARDY FRUIT.

FRUIT thinning as applied to hardy trees is a neglected practice in present-day gardening. It would be reckoned grave neglect on the part of a gardener who failed to see that his Turnips or Beet or Parsnip crops were not duly thinned; and were he to be so far left to himself as to allow the Grapes under his charge to go without thinning both in bunch and berry, what could be said of him? I suppose a gardener of that kind nowadays would be quite a curiosity if he be met with at all. But when we get outside, especially among Apples, Pears, and Plums, then we arrive at exactly the conditions that would be found were Grapes left unthinned, though of course in a much modified form.

Hardy fruit culture is carried on in the most haphazard manner from beginning to end, and the system of allowing the trees, if they set a full crop, to carry all cannot under any circumstances be called gardening. I confess that Apricots get a rough thinning, but when these set a large crop, as a rule, they are insufficiently thinned, and consequently the trees suffer the following year, frost most likely receiving the burden of blame. No matter how irresistible may be the impulse to allow a heavy crop to swell, the logic of large fruit and a succeeding crop is more irresistible still, and consequently every fruit should hang at a fair distance from its neighbour, and no clusters be allowed.

Plums are hardly ever thinned, and the consequence is that in most cases the trees bear a crop biennially, and generally then at the ends of the shoots. Large sorts such as the Magnum Bonums, Victorias, and others, and fine dessert varieties such as Jefferson and Coe's Golden Drop should be thinned as carefully as possible. All deformed and small fruits are thus removed, and that left is of the finest quality when ripened. Smaller sorts and those for kitchen purposes do not require so much attention, but certainly these should also be thinned sufficiently to allow all the fruit left to attain a good size, and also to secure the trees bearing year after year. As I have found that both Apricots and Plums do best fruited on spurs, it is made a point just now, when the fruits are being thinned, also to thin any spurs which are becoming crowded and which are free from fruit.

Pear trees on a southern exposure have been thinned for some time, and the fruit left has swelled to good proportions. Trees on a western exposure are now requiring attention, and shall be looked to at once. Unless the clusters are very sparse over the trees, no more than one fruit should be left to swell on each, though in the case of strong-growing early varieties like Williams' Bon Chrétien, Souvenir du Congrès, or Beurré d'Amanlis, this rule

may be somewhat relaxed, a heavier crop doing the trees no harm. Small varieties such as Seckle and Dr. Hogg may be left two fruits to a cluster, but with a heavy set less on an average should be left. Pears are so highly appreciated when in the best condition that it is advisable to err in leaving a too thin crop and securing first-class fruits, than to have too many and secure as the result a number which may not be presentable at table. This is also a good time to remove any spurs which are too thickly placed.

Coming now to Apples, I am certain that, provided we grow good sorts, no fruit pays better for thinning than these do. Some require very little or no thinning, as they never set more than the trees are able to carry to a good size. With us it is found that Ecklinville, Warner's King, Duchess of Oldenburg, Mère de Ménage, never set large crops, and consequently need little or no thinning. Still, it pays to go over the trees and remove any twins. Lord Suffield, Cellini, The Queen, Keswick Codlin, Nelson Codlin, and Stirling Castle require a good deal of thinning. Those of a utilitarian cast of mind may be inclined to ask, Does it pay, and for Apples especially? There is no question of doubt that it pays. For one thing, the chances of a loss of crop are reduced, as the trees are not overtaxed; for another, the fruit is so much better, that if it is to be sold it fetches on the whole more money, and if to be kept for home use the fruit keeps better, and is of better quality. Two years ago I had some old trees which were bearing large crops placed under my charge to make the most of, and I was very glad indeed to get the fruit disposed of at 4s. cwt., a price which did not pay the trouble and expense of gathering and marketing. At the same time, for well-grown fruit from 12s. to 20s. a cwt. was being received. Last year the cheap fruit trees bore nothing. The trees that had been tended had just as large a crop. That I know is not an exceptional instance, and must prove that it pays, but from the point of view of the hard-worked gardener can it be said to pay? and here, I think, the reply is equally conclusive, for if it pays to thin and tend common vegetable crops, it most certainly will in the case of hardy fruit. But the difference is that in the one instance the vegetables are expected, and in the other so many things may occur—*e.g.*, an overcrop one year, or a killing frost in spring, so that the Apple, Pear, Plum, and Apricot supply is reduced to a question of chance outside the province of the gardener; but I am very certain it need not be so to the extent it is, and the present thinning out of the young fruit is one of the most reliable methods of placing the fruit supply on a basis of some certainty.—A NORTHERN GROWER.

[Unquestionably the subject of thinning hardy fruit crops is important, and without doubt the practice advocated by our correspondent is very much neglected. The relative prices quoted for the produce of trees that were cultivated and of others that had been neglected afford the best testimony that profit results from good management, and that loss is incurred by want of it. The magnificent Apples that are exhibited at the best autumn shows are the result of cropping judiciously and affording the trees adequate support. Such fruit is not surpassed, if equalled, by the best samples that are sent from other lands, and which appear to frighten the timid in this country into the belief that fruit-growing can no longer be profitably conducted at home. Our correspondent knows that it can be, and he is not situated in one of the most salubrious districts of Great Britain.]

ROSE-GROWING FOR BEGINNERS.

(Continued from page 413)

EXHIBITING.

THE growing of Roses for this purpose, if the amateur intends to be anywhere near the front at any of the larger shows, is a very different matter compared to the production of blooms for our own amusement or to gratify our friends. In the latter case, medium-sized blooms, and plenty of them, are what we require, and we must remember that our friends are sure to be indulgent, and to take a very lenient view of our shortcomings—unless they happen to be rival growers. But when we place our Roses on the show tables, and they come under the fierce light of public competition, if there be any weakness about them one may be sure it will be very quickly discovered.

It will be some little time before a beginner will be able to tell a really perfect show Rose when he sees one; the best way, and the quickest, for him to learn, is to attend some of the large shows in London or the provinces, and to study the blooms in the winning boxes there. He will learn more in a few hours at one of these shows than I could teach him if I wrote for a week. I may, however, just give the main points of a show Rose. It must be full—that is, with plenty of petals in it; it must be perfect in shape, not ragged or mis-shapen; it must not show the eye or yellow centre; it must be the proper colour, not bleached if a light Rose, nor burnt if a dark one. The foliage must be good—it is not enough to have fine flowers, the leaves must be there also. The question of scent, I am afraid, is not often considered at Rose shows in the distribution of awards.

Now we will suppose the beginner intends to commence growing for exhibition. The best place for this purpose is a piece of land in the kitchen garden or other similar situation, where the plants may be grown in rows, much as we grow Cabbages and other crops. Wheeling barrowloads of manure, and the constant tramping backwards and forwards of master and man; the conveying of the cans of liquids, &c., together with the quantity of loose litter spread about for mulching the roots, are a series of reasons why growing for exhibition is as well carried on somewhere not exactly in front of the dining-room windows. Rose trees intended to produce show blooms will require to be treated in a very liberal spirit as regards manures and stimulants. We hear of amateurs trenching and digging their land 3 feet deep; we hear of them sinking tubs all over the place and filling them with all sorts of concentrated preparations. They spare no pains to do justice to their Roses—it is a labour of love with them—and if we intend to compete against them with any hope of success we must be prepared to do the same. In a short chapter on the subject, which I intend to give later, these manures and stimulants will be described, so here I will content myself with mentioning other points of culture.

The plants must be put in in the very richest soil that can be got; good old farmyard manure should be thoroughly mixed in, and half-inch bones also placed near the roots, while a sprinkling of bone dust may be thrown into the holes as well. The pruning must be of the most severe description, and when the buds break, all but three or four should be rubbed off. As soon as the flower buds show, a free use of stimulants may be indulged in, but we should bear in mind that applications, weak and often, will be much better than such as are applied strong and more seldom. Liquid manure of any kind should never be applied when the ground is dry and the plant thirsty. In such cases a good dose of plain water first is advisable, and then, when the ground is moist, the manure may follow.

Manures, or I should prefer to say, stimulants, containing much ammonia, such as nitrate of soda, sulphate of ammonia, guano, and even soot, are dangerous, and should be used with caution. With the first two it is a delightfully simple matter to remove every leaf from a plant in a marvellously short space of time—I have been successful in this respect more than once. These stimulants should be applied in very small quantities at a time, in wet weather, or watered in artificially after being strewed on the surface, and are best applied after sunset. In reference to soot, I once visited a nursery where I found in the Rose house this material strewed all over the pipes and floors. I was told it was to make the leaves green. I heard afterwards that it did that—and a little more; it first turned them green, then brown, and then—shrivelled them altogether. They do not use soot any more there. Had they been satisfied to place it on the floors, keeping it off the pipes, it would probably have answered the purpose intended very well. If among the Roses there are varieties which produce clusters of buds at the ends of the shoots, these must be watched for, and all but one bud removed from each shoot.

Caterpillars and green fly must be looked for. The best way to get rid of the first named is to cut off the leaf in which the insect

will be found rolled up. If the leaf is not removed it will be constantly catching our eye each time we go round, and a great waste of time will result. The second may be removed by means of a soft brush, laying the tip of the shoot in the palm of the hand and lightly brushing off the insects. The shoots may be syringed with a preparation of quassia, &c., of which see remarks on pests and vermin. Mildew can only be dealt with by means of sulphur dusted on the leaves, but I notice that a solution of copper is used in the French vineyards, and is said to be a perfect antidote. It must be said that all these pests are not causes, they are effects. They arise from the plants not being in a vigorous healthy state. I never see green fly on my Roses, I rarely have any mildew, and caterpillars do not bother me. Why? Simply because my plants, by the hard pruning they get and the liberal manuring, by their being open to all the winds of heaven and the pelting showers of rain, are kept vigorous and the foliage clean and healthy. If the amateur can keep his Roses equally so, he can afford to laugh at pests and similar nuisances.

As the flower buds increase in size each bloom should be securely staked and tied, or the wind may knock it all to pieces. Just before a show the blooms should be shaded; small circular wire frames covered with green painted canvas are used for the purpose, these being made to slide up and down on sticks to allow of being fixed at any desired height. Where these cannot be procured, a rough and ready way of shading is to bend the blooms over—this can only be done with weak-stemmed varieties—nearly upside down, and tie them to sticks in that position. If the beginner is a grower in a large way, he will not need to bother with any shading, as he will generally have enough freshly opened blooms to select from. "But," says some beginner, "why should I have to go to all this trouble? Nurserymen do not do so; they simply grow the Roses in the ordinary way, I suppose?" The answer to this is, that the nurseryman has thousands of plants to cut from, and whatever perfection future ages may bring Roses to, at present the fact remains that in a nursery or garden where one hundred thousand Roses are in bloom there will be one Rose better than all its fellows. The nurseryman with his thousands of plants can only cultivate them in the ordinary way and depend on the quantity he grows. The amateur with his smaller number of plants can devote more attention to each, and no doubt by his care and extra cultivation gets a much higher average of show blooms from the same number of plants than a nurseryman does. To be in a position to show twelve Roses on a given day, a beginner should have not less than 100 plants in about twenty-four varieties.

To those who love Roses there are few pleasanter places than a Rose show. Here the finest specimens of our favourite flower that it is possible to produce by all the care and attention that loving hands and hearts can bestow upon their culture are to be seen, and though I personally much prefer to wander at will through some well-kept garden or nursery, and admire the beauties on their native stems at my leisure, still I always enjoy myself thoroughly at Rose shows. In the morning, if we are exhibiting, or can by any means gain access to the scene of war, how amusing it is to watch the different exhibitors and the way they go to work. At this time all is confusion, to be quickly changed into order and neatness. In the afternoon the study of the public will be found very amusing, and if we happen to be winners we shall be pretty sure to hear many people say that they have much better Roses than ours at home and that they are so sorry they did not show. I never believed it, because people who talk like this at flower shows and other places—their name is legion—I generally think are best described as being what the Yankees call "gas bags."

Here is a good opportunity to warn the would-be exhibitor against timidity and being afraid to show because he thinks he will not have a chance. My own experience has been that I have lost as many prizes as I have won, simply by not rushing in on all occasions.

"Tis said,

That fools rush in where angels fear to tread."

But in Rose growing they are the fools who do not rush in. When our Roses are bad, other people's are probably no better. If we do not win our names do not appear, and if we have a dry season or a backward one, or have a plague of mildew, maggots, or green fly, or suffer from any other disadvantage, surely we are no worse off than our neighbours. I remember just before one show—I had not entered, so disgusted was I with the appearance of my Roses—a gentleman asked me to show, because he wanted me to "smash" a very dear friend of his, who was going about telling everybody that he could not be beaten. I did so, "smashed" the dear friend and carried off three first prizes; all there were to take.

A few words about dishonest exhibiting. I could unfold a tale, a long one, on this part of the subject, but do not think it necessary to do so. I regret to say, however, that in some parts of the

country the practice is very prevalent among the smaller exhibitors. What pleasure or honour a man can derive from a prize won by perjury and lying I cannot imagine. It cannot be for the paltry sum of money that it is done; but perhaps exhibiting is looked upon by those who do this sort of thing in a similar way to that in which certain persons regard Government contracts, these people apparently being of opinion that it is no sin to rob the nation. As far as Roses go, I am pretty certain that three-fourths of the Roses exhibited in this neighbourhood by the smaller exhibitors are not grown near Sheffield at all, but are procured mostly from Nottingham. It is the duty of every exhibitor, if he know of any case of dishonest showing, to go boldly to the Committee and make a complaint; it is a duty he owes not only to himself, but to others; and, further, it is the duty of a Committee to state in their rules that any person detected in dishonesty of this kind will be for ever debarred from exhibiting again at any show held by them.

Boxes for exhibiting Roses should all be 18 inches wide, and when closed 13 inches high. The length should be—

For six Roses 1 foot long.

For twelve Roses 2 feet long.

For eighteen Roses 2 feet 9 inches long.

For twenty-four Roses 3 feet 9 inches long.

N.B.—Some societies do not allow boxes more than 3 feet long; in the larger classes therefore two boxes would be required.

When the lids are off the boxes should be 7 inches high at the back and 5 inches at the front, consequently the lids should measure 6 inches high at back and 8 inches at front. The interior of the boxes should be fitted with laths put in lengthways, and so arranged as to admit three parallel rows of tubes. The top surface of these laths should be about 1 inch below the edges of the box. On the top of these laths a sheet of thick paper should be spread, and above this about 2 inches of moss and sphagnum. The parallel laths enable us to move the tubes nearer to, or further from, each other as may be desirable, and the use of the laths makes the box much lighter, besides saving trouble in collecting such a quantity of moss as is required where we fill the box with it. The moss should be packed so as to come well up above the edges of the box. Tubes are made of various patterns. For travelling the old-fashioned one, with the lid on to retain the water, is the best; for exhibiting, a double tube, patented by a watchmaker in Kent, is preferable, this holds the Rose at any height and in any position we wish. For those who require a great quantity, or where the cost is a consideration, I think a plain zinc tube with a flange on the edge can be made to answer all purposes.

In setting up the flowers a good deal of taste can be exercised. To start with, the moss should not be flat, but should be raised about an inch above the edge of the box, as already advised, and all roots and brown parts should be kept out of sight. I have seen a considerable variety of material used as a substitute for moss. In one case I remember a box had been filled with about 2 cwt. of sand, into which the tubes had been placed. It was rather a big lift, and I wonder the bottom of the box did not collapse. Another exhibitor had utilised the mowings from the lawn, and though they looked fresh and nice in the morning, they made a very poor appearance in the afternoon. Sawdust and green baize I have also noticed. Other exhibitors I remember to have seen with boxes made as for showing Pansies or Picotees, but the Roses were without those abominable white collars or paper frills which make the other flowers look so hideous. I have noticed, too, a great many different kinds of bottle used in place of tubes. Stone ginger beer bottles, ale bottles, wine bottles, blacking bottles, scent bottles, medicine bottles and others. Beginners will notice that the old hands always have their blooms standing well above the level of the moss. This must be strictly attended to; the blooms will look 50 per cent. better. They must on no account be rammed down flat on the moss. Any bloom not sufficiently stiff in the back to stand up and look the judges and the public straight in the face, must be made to hold its head up by means of a little stick attached to the stem. Modesty is all very well, but it is out of place in a show box. The patent tubes provide for this, a wire being inserted into the tube for the purpose. Generally speaking, an old hand can make a better show and effect with a second-rate box of blooms than a beginner can do with the same number of the best flowers that were ever grown.

The leading society has made a very stringent rule against adding any foliage to any box of Roses for competition. The Rose, with such leaves as grow naturally round the bloom on its own particular stem, may be put into the tube. Now looking at the exhibit as a test of skill in the production of foliage and flower on the one shoot, or rather top portion of the shoot, this rule is all very well. I know that growing flowers is one thing, and growing foliage is another and very different one. I know on my poor light soil I could get blooms for years before I could

produce anything like decent foliage. I may say here that lime and clay had a good deal to do with my ultimate success, not forgetting manure also.

But if we wish to make a box of Roses not for competition, but for beauty, we must add foliage. There are many people who will hold up their hands here and cry out, "Unnatural! What can be more beautiful than a Rose shown naturally as it grows? Added foliage is contrary to the natural habit of growth." My answer to this is, that when all Roses are like Baroness Rothschild and Merveille de Lyon, the blooms of which are buried in a little bouquet of foliage—these Roses in the show boxes are made to cover a multitude of sins in cases of absence of foliage in other varieties—I shall give in, but while my own favourite Rose, La France, remains as bare as it is, the bloom growing on a long bare flower stem, I shall hold to my present opinion. This being so, I find the best way to add foliage is to cut a piece of a blind shoot, or a piece of the flowering shoot if well furnished with leaves, and bind it to the stem of the Rose, putting both into the tube together. Without this treatment, a box of La France or other similar Rose—this remark applies to many of the Tea Roses—would be very like a box of blooms I once saw at a show, where "added foliage" being forbidden, one exhibitor had removed all the leaves, and the poor Roses stood in the box looking very bald and miserable.

Lastly, cut your Roses at the latest possible moment; either very late in the evening, or very early in the morning. Take a box of extra blooms with you; have locks on your boxes, and keep the lids on. Do not expect to carry all before you at first, and if you should fail to be successful in winning prizes, never forget that there are other and far more solid pleasures in Rose growing.—D. GILMOUR, JUN.

(To be continued.)

TOMATOES IN THE OPEN AIR.

CONSIDERING the great and increasing demand for Tomatoes it is surprising their culture is not more general in the open air. Very often the plants are introduced to every corner that they can possibly be pushed into under glass, and many of them are given such unfavourable positions that only a few fruits are secured; in fact, they do not pay for their place, and if the same labour was devoted to plants in the open air during the summer and autumn the returns would be heavy and profitable. As yet Tomato growing in the open air might be said to be an almost unknown practice. A few surplus plants may be placed out in some large gardens, but no regular system is general amongst amateurs, and small growers appear to be afraid to have anything to do with Tomatoes in the open. They suspect that the plants will not succeed, that they may fail to grow, and if they grow they will fail to fruit freely or with any prospect of remuneration; but have they been tried properly in every county and parish in the country? I think not; and I feel sure if they were cultivators would be startled with the good results. No one need be surprised if they fail to prove satisfactory when they are taken from under glass or a hot place and planted out in the open and then left to scramble for themselves, as such attention does not merit profitable returns, but if as much care is devoted to them as many are in the habit of giving to wall fruit trees, Roses or Dahlias, they will bear freely.

It is now too late to write of sowing seed, but not so as regards planting, and their culture may be said to begin in earnest. Avoid having anything to do with late spindly plants. Dwarf sturdy specimens are the only satisfactory kind. They should be raised in heat and grown under glass until about 9 inches or 1 foot in height, then place them in a cold frame close to the glass, and harden them by degrees. The plants grow with the greatest freedom in heat, and a cool atmosphere will not check them afterwards, but cold wind will make the foliage brown and check their growth. This must be avoided, and if the plants are hardened without injury, as they easily may be, their success in the open is insured. Nothing is gained by being in too great a hurry to get them out. Some may conclude that by planting early they will fruit early, but the opposite may be the result, as plants that are placed out too soon and receive a check in consequence are long in recovering, and it may be well into autumn before they bear ripe fruit. The present is an excellent time to plant out. All who either possess a house or frame may have the plants in fine condition now, and there is little danger of the weather injuring them.

Before planting the position they are to occupy must be selected. In highly favourable localities they may be planted in the open quarters at a distance of 3 feet or 4 feet apart and trained to stakes, but those who wish to grow them without any fear of failure and to produce ripe fruit in August, and continue to do so until cut

down by frost, should give them the support and shelter of a wall or wood fence. The position should invariably be exposed fully to the sun, and the wall may either be round the garden, the front, or end of a dwelling house, or anywhere else. Those with large walled-in gardens will find many positions for their Tomato plants, between the fruit trees, on low walls, in front of glass houses; and amateurs may always utilise the walls of their dwelling houses. It is not for the want of sheltered, sunny, and suitable positions that Tomato culture in the open air is not universal. We annually plant out many dozens of plants at this time. They begin to ripen their fruit early in August, and from then until November we cut some hundredweights of finely swelled grandly coloured flavoured fruit. In former years our plants have been planted chiefly between fruit trees on the walls, but this year we have devoted a wall 50 yards in length to them. It is wired, the plants are placed at the bottom, the shoots will be tied to the wires as they grow, and I feel quite sure the crop will be one of the most pleasing and remunerative we could introduce.

In planting no great preparation need be made for them. They must have a moderately rich soil, and as a rule the ordinary soil of the garden will suit them with the addition of some manure. A soil that will grow good Cauliflowers or Peas will always produce fine Tomatoes. They should be planted with balls of soil attached to the roots, if possible, and water them well soon afterwards. They may not show any signs of growth for a week or so, but when once they begin growing they will go on freely. I have known Tomato plants to be carefully reared and rightly planted, in fact in proper condition for bearing a first-rate crop; but they did not, as they were neglected after being planted, and this is liable to occur. The labour of attending to a few dozen plants is trifling, but it is giving them timely attention that is the secret of success. It never answers to allow them to become a mass of superfluous growths, and then cut all away except those which are bearing fruit. There will not be much fruit found on such plants; the cutting in will check the plant severely, and they will probably fail; but if one, or two leading stems at the most, are taken up from each root, and the side shoots are carefully taken off, they will never suffer from bearing superfluous growth or its removal, and I regard this frequent pinching of the side shoots a most important point in open air Tomato culture. The plants always grow very dwarf or compact. They begin to bear fruit quite close to the ground, and by exposing the flowers and fruit they grow fast and soon gain maturity. The point should never be taken out of the leading shoots so long as they can be taken upwards, and those who take the ends out of the leaders under the impression that they are improving them in any way make a mistake. Give them clear water when necessary, and until the fruit has formed in considerable quantity, then give them abundance of liquid manure. As to which is the best variety for open air culture, I may say they are all good when properly treated, but in cold districts preference should be given to Laxton's open air variety.—M.

THE AURICULA.

MR. W. BOLTON AT HOME.

AMONGST those northern amateurs who have made their mark as successful growers and raisers of Auriculas, not only did he this year carry off the Turner Memorial prize, but he also gained other prizes, and exhibited and obtained prizes for seedlings of his own raising, and I therefore think that notes of a visit I paid to him the other day may not be uninteresting, especially as not only did I see his collection, but also had a talk with him on various matters connected with our favourite flower, and may thus perhaps meet the wants of your correspondent in a recent number of the Journal.

Mr. Bolton's collection I have known and seen the progress of for some years. When I first saw it it was a small one, and was contained in a small house in a backyard in Mersey Street, Warrington. When I next saw it it was in Latchford Road, a little way out of the town, and now he has removed to Stockton Heath, about two miles off, where, in purer air, and with larger surroundings, he is able to carry out not only his love for this flower, but also for other things connected with horticulture. One can always learn something, even in unlooked-for ways, if we keep our eyes open, and so here I saw, for the first time, the sweet-scented and pretty Cape Pondweed (*Aponogeton distachyon*) grown in pans in a greenhouse. The house being badly ventilated, Mr. Bolton had put in several large pans of it, about 18 inches across, in order that they might give out some moisture by evaporation, so as to take away from the excessive dryness of the atmosphere. They answered a twofold purpose, for they were in flower all the winter, and supplied him plenty of cut blooms.

But to return to the Auricula. Mr. Bolton has considerably

increased his collection, but so far as named sorts are concerned, it is nothing like as large as many collections I have seen (Mr. Woodhead's for example), for like most of those who grow seedlings, he gives more attention to them, and believes he will raise some that will surpass those we already have. He has the *crack* kinds, of course, but not in any great quantity. He still believes George Lightbody is unsurpassed, but not unsurpassable, as no doubt with a more defined body colour it would be a more beautiful flower, but still it will take a good deal of beating. Acme, amongst whites, while very good, has the fault of two colours in the body colour. Of selfs, he considers Duke of Argyll the finest in colour, but Heroine (Horner) the best in quality that has yet been raised. By-the-by, I hear that there is a probability of this being let out this year. Of green edges, he is inclined to give the palm to Simonite's Rev. F. D. Horner, and to John Simonite amongst the whites. Frank Simonite he agrees with me in considering a defective flower, owing to its colourless eye; in fact it has too much of the Champneys style in it. It seems almost impossible, as Ben Simonite once said to me, to get this bright purple-coloured flower with a yellow or orange eye. Richard Heady had been fine with him this year, as it has been, I believe everywhere. In my own collection it was certainly the best of all the grey edges. It was not a Lightbody or Lancashire Hero year, and hence perhaps to some extent the ground of your correspondent's observations. The Auriculas were all in a house facing the north; some maturing seed, and some filling up their growth after blooming.

With regard to potting. Mr. Bolton thinks that it is a mistake to repot before July. His idea is, that after the plants have done flowering, they commence rapidly to form the plant for the following year, and that the heart then fills up with the new growth. If they are repotted, then this growth is checked, and that therefore it is better to wait until July, when, if repotted, the plants will begin to push roots, especially about the centre of the plant, where he is more anxious that it should be done, instead of pushing out to the sides of the pot. He uses glazed pots, as they necessitate less watering, and are more easily kept clean, so that the sneers with which some meet the use of glazed pots as opposed to all scientific theories, only shows that practice is a good deal better than theory in many cases, and in this amongst the number. Like many successful growers he has given up the old-fashioned practice of top-dressing, which used to be considered one of the most essential and important parts of Auricula culture. Like most growers, too, he has discarded all the nostrums wherewith the poor plants used to be physicked in former days, and altogether I feel that the older race of florists have been considerably taken down in these days; the older varieties have given way to newer ones; the old practices have been abandoned, and simplicity has become more the character of Auricula culture. In potting he believes in potting firmly, and in placing some material over the broken potsherds, so as to prevent the soil being washed down into the drainage—moss, spent hops, the more fibrous pieces of the loam, are all useful for this purpose—in fact anything that will keep the drainage clear.

With regard to that nuisance to the Auricula grower, autumnal blooming, he does not think that the time of repotting makes any difference whatever in its frequency or otherwise. He believes it to belong to particular varieties, and do what you will, some of them will bloom in the autumn; but he says that if the bloom is nipped off as soon as it appears, the plant, if vigorous, will bloom again in the spring, and he mentioned one case of a plant that had done so, which was one of his winning flowers this year. There seems to me to be reason in this, and it may thus comfort those who are troubled by it. With regard to that pest the woolly aphis, he estimates its power of harm at a very low ebb. He says that if you can prevent it from attacking the collar of the plant you have nothing to fear from it; indeed he is of opinion that where it only attacks the roots, it not only does no harm, but good, as it keeps up the root action by inducing them to throw out fresh fibres. I cannot quite see this, but I have certainly learned less to dread it. When in repotting I discover any of it, I get rid of it as well as I can, and wash the roots well. A solution of fir tree oil is a very good thing to use, and after that they should be washed in clean water.

In repotting, Mr. Bolton is careful to look after the tap roots of the better and scarcer varieties. All Auricula growers know that the main root of the Auricula runs down and forms a large central root or carrot, which is oftentimes the cause of disease and loss, but it will often be found that there are incipient shoots which are the precursors of offsets if properly treated. His plan is to cut this off, leaving a sufficient number of healthy roots for the nourishment of the plant. The tap is then planted in a small pot, and a bellglass placed over it. This induces the shoots to push out, and in the course of a little while will show themselves as offsets. When

rooted they should be taken off, and planted round the edge of a pot, when they will speedily increase in size.

Mr. Bolton is, as I have said, engaged in raising seedlings, and a considerable number of these were planted out in a bed in the garden. They are planted there as soon as they are fit to handle, and as they increase in size, if they show any good properties, are lifted up and potted. In the greenhouse were to be seen some pans where the seedlings were coming up very thickly, but his experience, as well as Mr. Horner's, is the same as that which one finds in other flowers, that those which come up quickly are rarely ever worth anything. I remember years ago Margottin at Bourg la Reine telling me that he had never found that the Rose seedlings which came up the first year produced anything worth retaining.

With regard to giving heat to Auriculas to bring them on in time for exhibition, he looked upon it as in itself an injurious thing. A good deal of the roughness of many exhibits he attributes to this, and he believes no Auricula grower would apply it if he could help it. He is himself preparing to build a house for flowering plants, as, like other growers, he finds it so much preferable to frames, where you can walk in and have the plants at the level of your eye.

It will thus be seen that we ranged in our conversation over most of the subjects connected with Auricula culture. Mr. Bolton is one of those who believe that there are no secrets in Auricula growing, and that growers can best promote its interests by communicating their ideas to one another.—D., Deal.

In reply to inquiries by "M.," I would, as to the woolly aphid counsel him not to be so afraid of it as to risk the health of the plants in attempts to utterly destroy it. It is small gain and comfort to slay the enemy at the cost of more ruin than he works. I have known great harm done thus by the owner himself, and do not myself consider that the woolly aphid, so long as it is confined to the underground stem and roots, does any harm to the plants. The difficulty, however, of tolerating him in a harmless inch is to prevent him taking the ell of excess; and I am sure that when the insect is allowed to gather round the collar of the plant so as to surround the new fibres, starting from that most vital part, the young roots are checked by the waterproof offcast wool with which this aphid surrounds its abiding place. When the roots are well away underground they do not seem to mind it.

I always, at repotting time, find some woolly aphid among my plants, and rid them of it at every shift as far as I can, by cleaning all pots, using fresh drainage materials, and washing the plants in a compound of rain water, softsoap, and tobacco-paper juice. I use no stronger insecticide, and this, as I use it, looks something like very weak tea with very "blue" milk in it. I always remove woolly aphid whenever I see it above ground on the neck of the plants, making a clearance with a small stiff-haired paint brush dipped in the above delicious beverage. At the same time I examine the ball of earth, and generally find it worth while to remove in like manner the colony of aphids that may be found between the pot side and the compost. A war of extermination is fierce and tedious, and is very likely to harass the plants, while any slight chance may reintroduce the newly extinguished invader.

Plants in light open composts, in which they are allowed to become dry at any time, are in the most favourable condition for woolly aphid. It knows the sanitary value of a well-aired bed and thoroughly well-drained premises, and will always be found most abundantly close to the side of the pots and among the open crocks at the bottom. The plant which "M." has for Smith's Ne plus Ultra is not true if it is anything like Simonite's Frank. There are two Ne plus Ultras, Smith's and Fletcher's, neither of which, however, need go much further in these days of once unthought-of progress with the Auricula. Smith's flower is a white-edge with chocolate ground colour, and abundant fully mealed foliage—a large round-looking squat plant, given by the fault, not a small one, to which Acme and George Lightbody, especially Acme, are addicted, of not throwing the truss boldly enough above the foliage, and so looking dumpy.

Frank Simonite first bloomed as a white edge, and is so classed, but is often now seen as a silvery grey. Its body colour of bluish velvet could not be confused with Smith's Ne Plus Ultra, and the foliage is half mealed and handsomely serrated.

The other Ne Plus Ultra is a plant of erect habit, leaves large, broad, and thick, with a flower of very ultra size—much too large to be refined, petal too pointed, and the body colour given to running into shades of maroon.

A descriptive list of the best varieties, at least of those that are as yet in commerce, would be very useful and interesting to beginners, and if the plants were in bloom before me I would gladly furnish descriptive notes; but it would be rather like painting a picture from general impressions of the original; and well as one may

know Auriculas by sight, and carry their beauties in memory from year to year, it will be found not easy to note down accurately every point of each in the absence of the living flower. We should be making some candlelight mistakes, and descriptions should be close and true, fresh from the eye to the pen, to be of use as a delicate test of identity.

Even then so difficult is the edged Auricula to paint in words that the late Rev. George Jeans, whose descriptions twenty-five years ago are so vivid and concise, admitted that friends growing the same flowers in different localities did not agree with some particulars of his descriptions, nor he, again, with theirs. Mr. Jeans' notes lie entombed in the late "Gossip of the Garden," and as I have the volumes I will gladly lend them to the Journal for reproduction if desirable. With regard to "M. S.'s" suggestion of a manual on the florist Auricula, I live in the hope of gathering together what I have strewed by the way on the culture of this flower.—F. D. HORNER, *Burton-in-Lonsdale*.

For the information of your correspondent, "M.," I think I may venture to state that the Rev. F. D. Horner will shortly commence a work on the Auricula which I doubt not from his great experience and intense love of the flower will prove a very mine of information and instruction to us amateurs who can learn very little of practical value from the old writers on this most fascinating flower.

Frank Simonite and Ne Plus Ultra are not much alike; the former has a violet purple body colour similar to Col. Champeys; in the latter the b. c. is chocolate, and dies off brown.

I fear "M.'s" George Lightbody has not bloomed in its best form this season, or he would hardly have questioned its superiority over all others in commerce (and in private hands, too, I believe). It has been very fine with me this year. I have had splendid blooms on several of the leading varieties (the best I have ever seen, but ten days too late for South Kensington), but none of them possessed the exquisite and subtle beauty of Richard Headley's matchless seedling. It is true it sometimes blooms with a very narrow body colour, but I am inclined to believe that that is the fault of the grower. I would venture to suggest to "M." that he should allow his plants to have an abundance of sun and air until the pips are about to open, excluding frost from the middle of March if possible, and never let the plants get dry at the roots. Under such treatment I shall be much surprised if "M." does not get a good bloom, and agree with the great majority of growers in their estimate of this splendid Auricula.

I have had no end of woolly aphid among my plants for years past, but I cannot say that it injures them.—T. PIPE, *Southern Hill, Reading*.

GAS LIME AS A FERTILISER AND INSECTICIDE.

"Gas lime," states Johnson's "Cottage Gardener's Dictionary," "is a hydro-sulphuret of lime with a little ammonia." Hydro-sulphuret of lime is highly injurious to plants; ammonia is a valuable source of plant food. Gas lime, therefore, is at once inimical and beneficial, paradoxical as it appears. In addition to many sulphides and ammonia, gas lime contains a compound of sulphur and cyanogen, which, though very deadly to plants, is singularly destructive of fungoid and insect pests infesting plants and which harbour in the soil. We have consequently two distinct properties combined in gas lime—viz., manurial, and anti-fungoid and insecticidal. We may glance at these separately.

MANURIAL PROPERTIES.—The ammonia in gas lime no doubt prompted its application to land as a fertiliser, and its dire effects on the crops gave countenance to its being classed by many, if not most, cultivators, as (it is stated in the "Gardener's Assistant")—"a manure which it is safer to dispense with than to use, at least in the garden." Although this is the prevailing opinion, the objection to the use of gas lime being very decided (and the grounds are not chimerical but experimental) it contains, nevertheless, useful properties. In its fresh state it contains most ammonia, and is potent as a fertiliser, but in that state it is fatal to growing crops. It also retains its deleterious properties so long after it is buried in the soil as to prejudice crops that follow some time after its application; indeed, the effects of gas lime are so pronounced, that few cultivators will have anything to do with it. This view of gas lime may be due to its injudicious application, or the prejudice resulting from insufficient experiment.

Gas lime being fatal in its fresh state to growing crops and on bare ground prejudices it for some time after we expose it to the atmosphere. It—i.e., the hydro-sulphuret—then becomes simple sulphate of lime or gypsum, which may, or may not, be free from injurious compounds. In that state it is useful in supplying sulphur as well as sulphate of lime to plants, if not ammonia, by converting the carbonate of ammonia into the sulphate, and so preventing the former escaping from the soil. That, however, is not admitted by some, and we may, therefore, consider ameliorated gas lime as useful to soils deficient of carbonate of lime. Whatever be the

action of ameliorated gas lime, there is no question of its forming or liberating plant food—fertilising properties of no mean order, consequently it is well worthy the attention of cultivators if it were only for the lime itself. That, however, is insufficient to account for its fertilising effects, especially to grass, and to Legumes, notably Clover, and all plants with knobs or galls on the roots, also to Turnips and Potatoes. In its ameliorated state it is a mixture of lime and gypsum, and as such is more advantageously used on light soil than simple lime, the latter being most suitable for heavy land, though success attends its application to heavy soils; indeed there is no soil to which this form of lime may not be applied with good results. In action it is much more efficacious than simple lime, on account of the direct nourishment afforded by the gypsum (sulphate of lime), and indirect, by the lime decomposing substances which afford a supply of potash and soda, besides decomposing animal and vegetable matter, thereby supplying ammonia, carbonic acid, &c., independently of the lime itself, an element of the food of plants. Gas lime is also useful in preventing the escape of ammonia from the soil through its sulphuric acid, a property it (in the sulphate state) possesses in proportion to the moisture, but most unaccountably is not so beneficial (as before stated) applied to heavy as to light or sandy soils, and plants containing but a small proportion of sulphate of lime derive greater benefit from it than those containing much more. This is a well-known property of many substances, and which cannot be satisfactorily accounted for, and shows, if it were necessary, the importance of comparative experiments.

The value of gas lime, after it becomes by long exposure to the action of the air and water converted into a mere mixture of gypsum and lime, is not unimportant, being in fact equivalent to a dressing of gypsum and of lime, therefore of enduring benefit. In that state we lose all or most of its ammonia, unless we make it when fresh into a compost by mixing with soil, and even then there is waste, unless there are substances in the compost on which ammonia can form, otherwise it will combine with carbonic acid and escape. In using gas lime for mixing with compost resulting of road sidings, pond cleanings, ditch scourings, or other débris, the substances essential as bases for the formation of nitrates will be present, as also in the accumulated débris or rubbish heaps of gardens; but to make sure, some wood ashes, old mortar rubbish, which are obtainable about most places, should be mixed with the compost, or the rubbish sprinkled as the mixing proceeds with a little salt, kainit, or superphosphate, so as to form bases on which the ammonia can form as nitrates. A ton of gas lime to six of compost is ample, which turned over twice, so as to thoroughly incorporate the materials, will, at the end of six months, be an admirable dressing for grass, applying twenty-four to thirty-six loads per acre, equivalent to from three to five tons of gas lime, which is a suitable quantity. The best time to apply it to lawns or grass land is in February, whilst on arable land it may be used at any time prior to putting in the crops. In that way we get the full value of the gas lime as a fertiliser without any of its injurious effects.

ANTI-FUNGOID AND INSECTICIDAL PROPERTIES.—For this purpose the gas lime should be fresh. If applied to the surface and left there oxidation will take place rapidly, and the ammonia escapes. It should, therefore, be lightly harrowed or pointed in so as to retain the ammonia, or a portion of it, as well as that resulting of the conversion of the cyanogen, which takes place, provided there are substances in the soil containing bases for the formation of nitrates. As some time is required for oxidation to alter the poisonous properties of the cyanogen, the gas lime must be applied on bare ground or fallow in anticipation of the crop. On ground intended for spring sowing or planting it should be applied in autumn—on stubbles after ploughing, or garden plots after digging, lightly harrowing or pointing in, whilst for autumn sown or planted crops it should be applied two or three months previously, and for Turnips, &c., it may be applied up to February or early March, and this will allow time for its oxidation, and conversion of the injurious matter into assimilable food for the crops, whilst fungoid and insect pests in the soil have been destroyed, and there are the remains of the gas lime, equal in value to a dressing of gypsum and lime, for the benefit of current and succeeding crops.

In the whole of my experience with varied substances I have not found any equal to gas lime in effectiveness against fungoid and insect pests harbouring in the soil. Against grubs, club, maggot at the roots of Brassicas, finger-and-toe in Turnips, slugs, and predatory vermin of all kinds, there is no agent so effective for destruction as gas lime. Year after year whole fields of Turnips succumb to finger-and-toe, which could have been prevented by a dressing of gas lime, Clover is galled at the roots, and crops of all kinds are prejudiced by fungoid and insect pests in the soil, and many which exist on the plants find their refuge in the soil, which

are mitigated in the severity of their attacks on the crops by a dressing of gas lime. Never were Turnips infested by finger-and-toe, Brassicas with club or grub, Onions with maggot, Clover with galls, or cereals withered by grubs, to say nothing of cankers and blights without end allowed to increase on land to which a dressing of gas lime has been applied.

As an anti-fungoid and insecticidal agent gas lime is invaluable. In cleansing the land of pests preying upon its crops it is unequalled (so far as I know) in efficacy and cheapness. For land having a slight tendency to produce in its crops any of those maladies attributed to fungoid or insect pests, a light dressing of gas lime will suffice, or three tons per acre, which is equivalent to 42 lbs. per rod (30½ square yards). That is a minimum quantity to be of value, even on clay soils, which require a less quantity than light or sandy soils. Clays contain more abundant bases for the formation of nitrates, are more retentive and less affected by atmospheric influences than sandy soils, so that a less quantity suffices. In case of light soils the quantity should be proportionately increased; indeed the dressings should be in proportion to the texture of the soil. If for a heavy soil, three tons are employed per acre, it may be increased to three and a half tons at the dividing line of a clay from sandy loam, and at the extreme the other way, or a sandy loam four tons, which gives a difference of a ton between a very heavy and a very light soil, or of 14 lbs. per rod. At those rates it may be given every third or fourth year, according to the rotation, with very beneficial results as regards the bulk of the produce and the freedom of the crops from disease.

When, on the other hand, the land is foul, recourse must be had to more drastic measures—i.e., increase the quantity of the gas lime. Five tons for heavy, and six for light soil per acre, may be taken as a sufficient quantity to rid land of pests injurious to its crops. That quantity will effectually save the Turnip crop from finger-and-toe. I saw whole fields of Turnips in 1886 a putrid mass, whilst gas lime could be had for next to nothing at the works within two miles. The cultivators attributed the disaster to the peculiar season, but smiled and shrugged their shoulders in contempt at the mention of gas lime. In some cases whole fields succumbed, and many others had their crops much depreciated in value by a very severe attack of Brassica aphides. Had those fields been given a dressing of gas lime on the stubble fallow in February or early March at the rate of five or six tons to the acre, and lightly harrowed in, I am certain the "peculiar" weather would have had no effect in inducing finger-and-toe, nor would the aphides have appeared—to destroy the crop in the first case, or reduce its bulk by half in the other. Seventy pounds per rod effectually cleanses the soil of gardens, but owing to the follow-on system of cropping that prevails, it is difficult to apply it so as to prove efficacious without prejudice to the succeeding crops, and not only that, but there are fruit trees, &c., near the vegetable quarters, to which the gas lime incautiously used would prove injurious, if not fatal. In mixing gas lime with compost it must be kept away from the roots of trees, or it will kill them, and it is highly poisonous to Box edgings, &c. In its fresh state it must be used upon bare ground or fallow, and two or three months in anticipation of the crop. This is repeated to prevent disaster by its injudicious use. Perhaps the best time to apply gas lime to gardens is as soon as the soil is cleared of its crops, disposing it evenly on the surface, and pointing in lightly, or scratching the surface over well with a fork. After it has lain for a few weeks, six to eight, it may be dug in and the ground cropped. Gas lime, however, is best applied and kept near the surface, therefore it should be applied when practicable, as advised, on bare ground that will not be required cropped of two or three months.

Some have a decided objection to gas lime on account of its smell. This is remarkable, when we compare it with the odour of diseased or decayed vegetable crops. To correct the offensiveness, the gas lime may be mixed with sufficient dry earth as will render it dry enough to be handled, and in that state it is readily applied to land, and more evenly than used in its raw state. Ashes may be used when the dressing is for heavy soil, or preferably charcoal, or even the ashes resulting of the burning of a heap of twitch, whilst for light soils loam would be most desirable. In this state its value as a dressing is considerably enhanced.

The only other agent comparable to gas lime is fire or charring. It is the remedy of the scientists, albeit one long pursued by horticulturists, and of which a notable instance of efficacy in freeing the soil of those pests, fungoid or nematoid, causing the Cucumber disease, has been recently recorded by Mr. Pettigrew in the *Journal of Horticulture*. For many years (I may say the practice is immemorial) gardeners have been in the practice of roasting cowdung, peat, turfy loam, &c., for the destruction of larvæ, &c., and with singular benefit to the plants in health and freedom of growth. It is a question of heating so as to kill obnoxious vegetable and

animal life, fungoid spores and nematode germs, with others of higher order, by which they are not only kept from injury, but converted into direct sources of aliment. It is, however, necessary to distinguish between roasting and burning. The roasting or charring is fertilising; and burning is, as regards the prevailing constituents, impoverishing it by the conversion into ash of the animal and vegetable matter, though it may, and does, effect other changes that, from another point of view, may be compensating. It is different in cases of charring soil full of fibre or humus to burning clay, as we seek to retain all the manurial value of the soil, whilst in burning we seek a change in the soil constituents. Therefore, in roasting soil for the destruction of animal or vegetable, we must keep from burning, in order to retain the full manurial value of decaying vegetable and animal matter. A temperature of between 212° and 270° is fatal to all, animal and vegetable, indeed it hastens the decomposition, and renders the matter sooner assimilable. But there is this objection, that however applicable to soil for pot and other plants under the gardener's care, it can never be generally applicable to land, nor is it advisable, unless we are prepared to restore the equivalent of that driven from the soil of assimilated, or existing ready for

Being in one moulded piece of rubber it is very durable, and not liable to crack or tear. The Duplex is made in one useful size, holding about half a pint. To use this implement effectually, it is best to hold it as figured in the drawing—thumb at the end. By dropping the hand with the nozzle end of the ball downwards, and then quickly raising it and pressing with the thumb, a thick cloud of powder can be ejected. Many experiments made have convinced the manufacturers that the balloon-shaped ball is the best form for this purpose. It is not a toy."

THOUGHTS ON POTATOES AND "FADS."

I HAVE had a little experience of editors of various kinds in my time, and though they differ in some if not in many things they agree in one—namely, from some occult reason taking a contributor by surprise. I do not mind confessing that many a time I have written an elaborate article, as I thought, clothing my ideas, or someone else's, in temptingly ornate language, and sending off the precious budget of fine words in the assurance that the production would be honoured with big type and a leading position. Vain was the hope, and great my surprise to find all my pet paragraphs omitted, only the plain matter-of-fact residue being condensed into half a page of small type; then, on

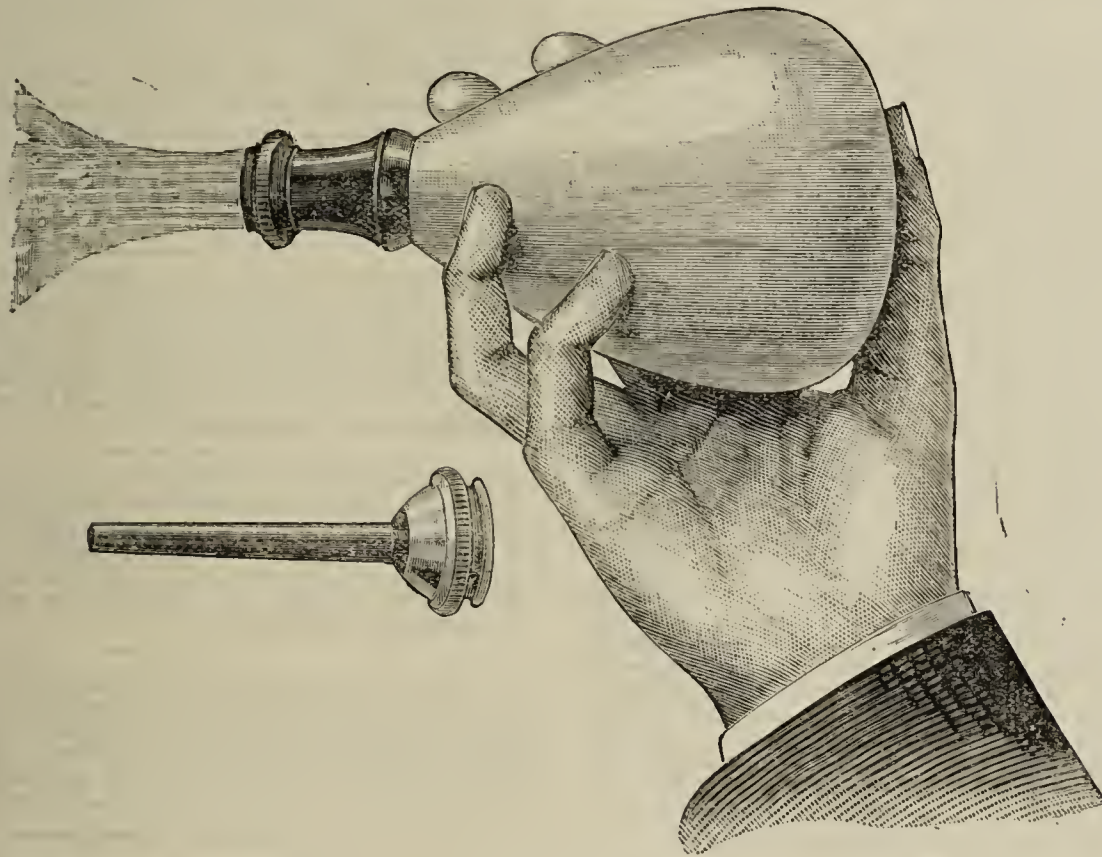


Fig. 77.—Insecticide Distributor.

assimilation, matter — *i.e.*, decomposing animal and vegetable substances, or manure. Burning clay is very distinct from burning the surface soil of those and loams. Burning clay is very beneficial because of its liberating inert matter, improving the texture of the soil, and enabling substances present and applied to become sooner assimilable as food for plants by admitting air and rain freely.—G. ABBEY.

AN INSECTICIDE DISTRIBUTOR.

WE have had submitted for our inspection by Messrs. Wood and Sons, the useful appliance represented in the engraving. It is called the "Duplex," because either the perforated nozzle can be used, or the larger tube, the powder being driven through this with such force as to reach Vines on the roof of an ordinary sized house; through the nozzle it is diffused as if in a cloud for filling a greenhouse. Any plants infested with insects either inside or outside the house can be dressed in a moment, and the appliance will be of service in the Rose garden and for fruit trees. It appears to be fairly described in the circular as follows: "This distributor spreads a dense cloud of tobacco powder, sulphur, thanatos, hellebore, or any other insect powder; and, by using the tube in place of the perforated nozzle it will eject to a considerable distance, thus enabling the operator to reach distant plants and shelves or overhanging plants. It can also be used for ejecting fluids or liquids.

the other hand, some plain narrative of facts, or a series of random jottings, that I thought might just pass muster, have to my equal surprise been brought to the front. But why? That has often puzzled me, and more than once has reminded me of those far past episodes in schoolboy life of being "brought to the front to be whipped." Teacher Iggulden seems to take that view of the ease in respect to my article on page 367, and hence he whips me.

OUT of this preamble two thoughts arise. The first is this. If a young man desires to accomplish anything on which he has set his mind, let him cast aside everything he finds an impediment and persevere. If he wishes to be a writer, an editor will teach him what to avoid better than all the schools; and if the truth were told I suspect it would show that some of the best writers on gardening are those who have profited the most by failures, hence ceased all attempts at grandiloquence of expression and resorted to the plain, clear, smooth effectiveness of simple English words. So much for that thought. The next is this. In a controversy keep a cool head, maintain a good temper, respect your adversary, give him the retort courteous if you can, and, above all things, never base an argument on an assumption. That is always a mistake, and conveys the inference that you are not well grounded in even the rudiments of logic, and your opponent takes advantage of the position. I think I am gradually creeping up to my critic, who very clearly intimates that *he* is the logician, and I—well, a sort of literary magician, who can make him believe that black is white. I accept the compliment, as I had begun to despair of his believing anything that did not originate with himself.

WITH a great deal that Mr. Iggulden writes I cordially agree, but

am glad to say I generally find something in his articles from which to differ. If we all thought alike it would be a humdrum world. It was not necessary for him to remind us of the delight he takes in upsetting time-honoured "fads." Searching for something to which he can object would seem to be the great work of his life; and he pursues it with such energy that if he cannot find something to demolish in an article he is criticising, he will evolve a proposition of his own, or borrow one, set it up, then proceed to knock it down as if he were pulverising an opponent. If he continue in that course he will at no distant date achieve the distinction of being the greatest fad in the family.

ONE of our friend's "fads" in the past was to advance the existing vigour of the Early Ashleaf Potato as proof that late sorts had not degenerated, except through weakening the sets by removing the first and strongest growths. When I showed that a variety which he now admits is practically extinct, was so late in starting that it could not have been subjected to that weakening process, he coolly says, "We will drop the Ashleafs," under the specious assumption that they are "too much" for me. But is there not another cause—the explosion of the little fad on which he based his argument? The truth is, more early growths have been removed from the tubers of the old Ashleaf over a longer period of time than from any other variety in cultivation. Yet it exists; while the least number of early growths have been removed from the Fluke, yet it is extinct. So much stronger are facts than fads.

I HAVE practised the retention of all the force possible in the "seed" tubers of Potatoes for some time, I think, before Mr. Iggulden did, and certainly denounced their dissipation in this Journal a few years before our friend's first line was printed. The practice is bad and injurious to any varieties to which it is applied; but it does not account solely for the weakening of varieties distinctly different in character and that ripen, if they ripen at all, three or four months later. My contention is that no plant, be it Vine or Potato, that is systematically perpetuated from immatured parts—impaired parentage—over a series of years can be represented in its original vigour; and I suspect very different arguments than those advanced on page 413, supplemented by the curious gleanings from McIntosh, will be required to demonstrate the unsoundness of that proposition. It is based, I think, on a physiological fact, which is, I take to be, firmer than Igguldenian logic.

THIS shall now be examined in another aspect. It is suggested that Potatoes fail through being grown in "humus-abounding garden soil," and gardeners are told to imitate farmers in using more mineral fertilisers. Without saying anything against those manures we have to face the fact that it is precisely in the "humus-abounding gardens" that Ashleaf Potatoes have been grown for generations—the very kind that Mr. Iggulden adduced as typical of sustained vigour. No other varieties have been grown so long in such rich soil as these have; still they are with us as strong as ever, while others customarily grown in the less rich soil on farms have dwindled away and can no longer be profitably cultivated. But the truth of the matter, in my opinion, is this, that we cannot take the Early Ashleaf as a basis of argument in considering the condition and requirements of the late-ripening sorts. These would not object to richer soil if they ripened in hot weather and had the same space for unobstructed leaf-development that is accorded to the dwarfed growers; indeed, the better the soil the better the crops now, when the plants are not overcrowded with clusters of small stems and leaves that weaken instead of strengthen them, exhausting the land of its fertility and returning nothing to the tubers that are starving below.

THE best growers of Potatoes, those expert cultivators who can and do send ten tons of good tubers per acre to market, do not work on the starvation system, and it was one of these good growers who failed with the Fluke, and not through the want of either lime, phosphates, or potash. He knew more about manures than our mentor does who tells gardeners to imitate farmers, and to use "anybody's special Potato manure," because the more experienced grower had several of those manures analysed, and some of them were ruinously costly. There are good "special" manures without a doubt, but too many special swindles have been exposed to render the advice to grow "anybody's" unknown mixtures safe for general adoption. It is not the best teaching either to advise the use of kainit as a top-dressing before earthing the plants. It should be applied with the sets if not before, or it will mainly benefit the crop *after* the Potatoes, if such need potash. With nitrogenous manures, such as sulphate of ammonia or nitrate of soda, also the tolerably quick acting superphosphate, it is different, and 1½ ewt. of either of the former with twice or three that quantity of the latter so used have proved a profitable investment, but even phosphates as well as potash are better applied with the sets. Another word on manures. Nobody's, let alone "anybody's," special mixtures are equally suited for all soils. The best advice on the use of fertilisers is that which has been enforced by the writer of the farm articles—to know what you are buying, and buy under a guarantee; then always bearing in mind the injunction of Mr. Cook in the last two lines of his valuable letter on potash last week (page 454), in which he says with great truth, "Careful experiment in all cases is the only absolutely reliable test of the requirements of crops in any soil." It is by acting in accordance with that test and a generous application of fertilisers that the best crops of Potatoes are produced, and not by using "anybody's" special manures just before earthing the plants.

I HAVE yet to refer to the assumption, absolutely gratuitous and groundless, that neither myself nor the able Potato grower to which reference was made "tried the experiment of planting Flukes on a warm border" for securing a longer season of growth and better seed. Both that and other experiments have been made; and it is on them, and not mere theory, that my remarks were and are founded; and yet my logical critic would "like a few tubers to experiment with" in that direction. Why did he not try the plan when he had the chance, and thus teach from experience instead of drawing on his fancy for arguments, and hoping to have the experience afterwards when he can get a "few tubers?" I have probably made experiments with Potatoes that our friend has not dreamt of, and quite sufficient to enable me to dispense with the necessity for hunting up McIntosh—a mine that is well worked by more than one writer on gardening.

MR. IGGULDEN is years too late in his suggested experiment, and he may perhaps be interested to know that his new plan of leaving Potatoes in the earth for retarding their growth in spring was systematically practised thirty years ago with varying results. It was this which led to the once much lauded but not long practised system of November-planting. I have known Ashleaf varieties, left undug, all start into growth in the autumn, and thus ruined, and they can be kept better under favourable conditions out of the ground. With Flukes the plan utterly failed. During some seasons it answered with Regents; in other years it was non-effective. I have not tried it with Champions, and in some soils especially, I should think it likely to answer well with them. Mr. Murphy is in error in supposing leaving them in the ground is equivalent to pitting. The circumstances are quite different unless the heaps are like many I have seen—miniature ridges resting on a base not much more than a foot wide—that method of storing being practised by a very able gardener who won his spurs years ago as an exhibitor of Potatoes, and who is always a formidable opponent whenever he exhibits. That narrow-ridge plan is good and worthy of mention here.

MR. IGGULDEN is justified in recommending the Champion since it answers so well with him, but the fact remains that it is no longer nearly so profitable as it once was in many districts, with the result that the acreage under that variety is greatly reduced. One cultivator who had about 300 acres of the Champion a few years ago has not now thirty acres; and I have seen more diseased tubers of the variety than of Regents grown in the same field.

I COULD say something in support of the experience of "N. B." as to the precocity of unripe tubers, and if time permits shall not hesitate to say it, though it may appear in conflict with some views to which I have given expression—at least any possible "lashing" from Mr. Iggulden will not deter me; all his flagellation I can endure, if not enjoy, because the greater his onslaught the more the chinks in his armour are invariably exposed.

MR. IGGULDEN has something to learn on the subject of changing seed. This is very evident from his remark as to the inutility of changing vegetable seeds, say Peas, as seedsmen could tell him, and farmers too, whom he asks gardeners to imitate. Anything more curious than the remark alluded to has not lately appeared in the Journal; it is a fad with a vengeance in the opinion of—A THINKER.

POSTPONING ROSE SHOWS.

THE disorder of postponement has appeared among Rose show fixtures, and seems to be a catching complaint. Reigate was the first victim, and then the Crystal Palace fell. The inconvenience of the alteration at the last moment of the date of a great Show like that of the Crystal Palace, long since fixed and advertised, and in accordance with which other fixtures are arranged, is very considerable, and is in no way reduced by the selection of the day of the Queen's great Jubilee Review at Aldershot, when railways on that side of London will probably be in a state of chaos. One result has already been that the Hereford Show has had to be postponed from the 8th to the 15th July, a date when the Hereford Roses will probably be past their best, and other shows will also very likely be upset by the alteration; while the two favourite dates of the 1st and 2nd July are left without any shows at all.

It remains to be proved that Roses will be later this year than last, when it will be remembered that in spite of severe spring frosts, the principal Surrey growers found their Roses past by the 6th July; but the postponement of long-settled and advertised fixtures, apart from independent reasons of necessity, is both unfair and unwise; for if it be urged that there will be few exhibitors at early shows, even should it be the case, it will not mend matters much to postpone, as the exhibition will then probably have to be held on the same day as another show elsewhere, and there are very few exhibitors that can be in two places at once.

This year there seems a danger that exhibitors may find no shows to go to until the Roses are all over, and that then all the shows will be held on one day.—THETA.

AN excellent American adage bids, "Never prophesy unless you are sure." The temptation to do so is, however, strong occasionally, perhaps

oin the present instance. This season is a peculiar one, and appears to me peculiarly hopeful. For the first time for many years we have escaped the May frosts. Those terrible three days, with their ten or more degrees of frost, have this May been conspicuous for their absence. The frosts of April and cold of May have kept Roses back most unusually, and yet since they started the constant showers have been pushing them on fast. For many years past, so far as I have noticed, the first blooms have always been more or less damaged by the May frosts, and unfit for exhibition. If these have escaped this year, the backwardness of the season may be found more than made up.

At the same time the shows have been getting rather mixed. I see that one Association with which I have the honour to be connected has brought down on itself the heavy indignation of another association by taking its day, and of course the great Crystal Palace has done the same without compunction. That, however, is but to run foul of the great Jubilee review on July 9th. If it were any use suggesting, I would submit that if affiliated societies would allow the secretaries of the N. R. S. to have a final voice in the fixtures, very much clashing would be avoided, and popular exhibitors escape impassioned appeals to be in three places at once.—A. C.

CLEAN CELERY.

CELERY is a very common vegetable, not only finding a place in all large gardens, but almost every amateur grows it, and many cottagers try to have a row or two. We give away hundreds of plants every spring to the latter, and find a great demand for them in our own parish alone. There is no difficulty in growing it, as any ordinary soil well manured will cause the plants to assume large proportions, but it is no easy matter to secure large well-blanchd specimens quite sound and clean. As a rule the stems that are under the soil become disfigured with worm marks. In competition worm-marked heads stand no chance of winning a prize, the cooks do not approve of it, and when cut and used as a salad the marks are by no means attractive. Short clean Celery is such a very desirable production that all should do their utmost to secure it, and careful timely attention will, as a rule, accomplish it. The chief matter is to dress the plants with soot, lime, and salt. Salt is dangerous, but some things agree with it, and Celery is one of them. It must not, however, be used very freely, and a slight sprinkling now and again is sufficient. As soon as the plants begin growing place a little in the trench, spreading it over the surface, but not quite over the plants. Repeat this after each earthing, and in nineteen cases out of every score there will be no worm marks on the Celery. Soot may be used in the same way, but it may be placed more over the plants, and it may be mixed with the soil in the process of earthing. Lime may also be used in the same way. Should earthing go on and it is not discovered that there are any worm markings until they have taken possession of it, it will be labour in vain to apply any of these preventives I have named. Prevention is the point to consider, and this can only be done by beginning with the growth of the plants, and continuing the application of the antidotes as long as it is necessary.—A KITCHEN GARDENER.

HORTICULTURAL SOCIETIES.

PERHAPS horticultural societies were never so numerous as now, for they are fast becoming established in every town and village, and, taking them as a whole, they are in a more healthful condition than ever before. Such a state of things could scarcely be expected when the present depressed state of trade compels economy and reduction on a broad scale. No doubt horticulture generally has suffered, and these institutions alone have held their own, in fact they have not only increased in numbers but in prosperity with few exceptions.

This is most gratifying when the opposite might have been expected, and augurs well for the future prosperity of gardening. I take this pleasing sign of the times as a certain token that a love for the garden and gardening is becoming deeply rooted in the hearts of the people of this country. I feel convinced that those who support horticulture so ably have realised that this pleasurable pursuit is calculated to raise the public taste. This refinement and appreciation of the beautiful in nature is already apparent, for the public flock to flower shows with greater eagerness than was the case a few years ago. Perhaps this has been more marked during the last year than during any previous period. The large provincial show of the Royal Horticultural Society must, however, be excepted, for it was a failure, due, I feel certain, to the great attraction that was held so near. It must not be taken for granted that the Liverpool public will not bestow their patronage and support on such worthy objects. The quickness and readiness with which the necessary guarantee fund was raised to £2000, in round numbers, will quickly dispel such a notion. Again, the autumn show held by the Liverpool Horticultural Association was well patronised, for considerably more money was taken at the doors than has been the case before. I hope the "Royal" will not conclude that their shows are not appreciated in the provinces, and therefore decide to hold no more. For my own part, I hope to see them again in Liverpool. Success may and can be insured in the provinces if the Society were reorganised, and when a decision is arrived at to hold an exhibition in the provinces, to work in perfect harmony with the local society, if there is one. To ignore those who know the neighbourhood and are in decidedly the best position to tender advice means partial failure. I look to the future for brighter things, when a better feeling will exist generally towards the

"Royal," its labours widened, and its usefulness increased. This can be accomplished by united effort on the part of all, whether they live in the vicinity of its home or in the provinces. How can this be accomplished? In no better way than by finding something for all to do. Give horticulturists far and wide a voice in its management, and then I predict great success for the old Society.

No one familiar with horticultural societies will dispute that they are managed on a better system, a more business-like principle, than formerly. But it is not enough to start in a certain groove and keep in it year after year. The public demand something more than this, and if it is not supplied such societies lose their hold upon the public, and soon struggle for an existence, and finally wind up their affairs in everybody's debt. I have watched the decay of societies, and but for the timely introduction of new energy and re-organisation would have gone to the bad. Some have failed and been replaced by institutions worked on a wider and broader base, and thus succeeded. But to insure success and public appreciation it is not sufficient to work on the same lines, and provide without variation the same or similar attractions at their gatherings for those who bestow their support. When schedules are issued time after time, and arrangements carried out on the same principle, the idea becomes established that it is no use going to the flower show, it will be the same as last year. My advice then is to the directors of these exhibitions to set their house in order, remodel their rules if they need it, and vary the schedule as well as the arrangement of the exhibits as much as possible for the pleasure and entertainment of the public. These must be interested, for upon them horticultural societies are dependent for their existence. What is wanted is change, at the same time the main object must be kept in view—namely, the advancement of horticulture. Greater strides in the attainment of this end would be certainly accomplished by deviation from the trodden path. There is far too much sameness in our exhibitions, and this will continue as long as the schedules are issued annually with such slight alterations from those of the previous year. Certain classes should be dropped out and fresh ones introduced, and the schedules issued early to give ample time for preparation. Again, the schedules of some prominent societies only actually provide for two or three classes. A few open classes for nurserymen, the remainder for gardeners—amateurs as they are called—with slight restrictions to prevent the smaller growers in the last section being out-rivalled by those with greater convenience, no provision being made either for cottagers or amateurs proper. The object of every society should be to widen its base of operations, and provide for the greatest possible number, so that its influence will extend as widely as possible. Horticultural societies do not flourish by and for the few, but by the aid of the many.

Horticultural societies have undoubtedly assisted in the progress of gardening, but if they are to do their share in this work in the future it is not sufficient to exist solely for the benefit of a few in the vicinity of each locality. It may be argued that the produce of the few staged in excellent condition has a great stimulating effect upon others by inducing determination to achieve similar results. No doubt such is the case, but holding two or three exhibitions in a year is by no means sufficient to keep alive that enthusiasm necessary for steady progress. When the exhibition is over there is a lack of interest even in the Society itself, and on this account, instead of progress being made, there is a strong inclination to plod on in the same old style. Many societies have, during the past few years, instituted fortnightly or monthly meetings of the members for the purpose of reading papers and discussing subjects connected with gardening. Such efforts are praiseworthy, and will, if carried out in a right spirit, result more beneficially to those who take part in them than merely seeing a number of excellent exhibits. Even in these meetings there is often a lack of energy and interest. A good deal may and undoubtedly is due to shyness. Greater good would result from these gatherings if more would take an active part in writing papers or offering an opinion on those brought forward. The interest in these meetings at Liverpool is increasing. For some time past they have been well attended, and if they continue the Society will soon need larger quarters.

I have said there is a difficulty in getting members to write papers, and I have a suggestion to make which the Liverpool Society as well as others might make a note of and duly consider—that is, to offer liberal prizes for papers on different subjects, one to be open and the remainder to be confined to the neighbourhood of the Society. The rules for the regulation of ages, and other matters that would be required in such a case, I leave for others to deal with. This would bring forward papers sufficient to last a whole session, provided the prizes were worth competing for. Liverpool did attempt this, but the competition was poor; and well it might be, for the Society only offered 10s. 6d. for the successful candidate. This matter is under consideration, and I daresay they will be more generous in the future, and I feel sure will be liberally responded to by a good competition. This should be the work of societies as well as meeting together and holding two or three exhibitions.

This reminds me, too, that all prosperous societies with a good balance at the bank should establish a library in connection with their meetings for the benefit of the members. Such a thing merely wants a start. A few pounds set apart annually for a few years would secure a good number of useful books, and then there would not be much difficulty in making it self-supporting. I am firmly convinced that if societies only made a start and then appealed to owners of gardens in their neighbourhood that the appeal would not be in vain, but that they would be liberally assisted by either money or books.

It will be seen, then, that not only does the Royal need reorganisation, but other societies in a better financial condition according to their size require a thorough overhauling, and their base of operations widened. The result would be that the membership would be materially increased in proportion as they extended their influence and created an interest in their varied work. Could there be a better or more appropriate time for commencement? Let the Jubilee year of Her Majesty be also the jubilee of horticultural societies for increased effort and usefulness in the progress and advancement of the profession in which we are so deeply interested.—A NORTHERNER.

THE NORTON PANSY SOCIETY.

MR. C. E. SCARNE, the Chief Librarian of the Birmingham Library and a few friends who reside at King's Heath, near to King's Norton, one of the most pleasant suburbs of Birmingham, initiated a Pansy Club in 1886, and held their second Exhibition Whit Monday. The season has not been a favourable one by any means for Pansies in the Birmingham district, but there was a fair display of blooms, many of those from the local growers being of very fine quality. The chief winners were Mr. Alfred Hunt, Mr. John Hunt, Mr. G. F. Bullock, Mr. John Simkins, and Mr. C. E. Scarne, who exhibited some good Pansies and Violas in pots, which took leading honours.

The silver medal for the best named seedling not yet sent out, three blooms to be exhibited, was awarded with a certificate also to Mr. James



Fig. 78.—*Spiraea confusa*.

Simkins for Syren, a full sized flower, of first-class form and smoothness, colour, violet top petals, with wire margin of white, immense deep rich blotch with well defined margin of white. Messrs. Laird & Sons, Edinburgh, obtained a certificate for three blooms of Fancy Pansy John Pope, an improvement on William Dean, a very fine variety. Messrs. Paul & Son, Paisley, were awarded certificates for a Fancy Pansy Alfred Hunt, a good variety, also for a fine show yellow ground Pansy named William Dean. Messrs. Laird & Sons, Edinburgh, contributed a quantity of leading Fancy Pansy blooms, Mrs. R. Young, Mrs. Orr, Mrs. H. Hunter, William Allan, very bright; Princess Beatrice, Mary Tate, Wm. Dean, Mrs. J. C. Hope Vere, William Dick, Campbell Bannerman, Brightness, and Gem, being especially fine.

Messrs. Paul & Son, Paisley, contributed a very fine lot of blooms of Fancy Pansies, containing many promising seedlings, and the following named varieties were very fine:—Mrs. J. P. Frame, Wm. Dick, Pilrig, Evelyn Bruce, Mrs. J. Dobbie, Lord Rosebery, Louise Dottie, William Cutbberston, and Miss Bliss. Messrs. Laird & Son sent a very fine lot of Viola blooms, the most noticeable being Archie Grant, Arthrey (very distinct and pretty), Harlequin, Duchess of Albany, Pantaloon, Emily, Lady Sophia, Topsy, and a bright striped seedling.

Messrs. Pope & Son of the King's Norton Nurseries, sent a grand lot of Fancy Pansy blooms, quite equal in quality to the best Scotch flowers sent, the finest being Bob Montgomery, Lord Rosebery, Koningsberg, Mrs. Scott, Princess Beatrice, Pilrig, Miss Bliss, Charlie Stansell, My

Lady, William Dick, Mrs. C. P. Frame, Evelyn Bruce, Mr. McInnes, Maggie Edgar, A. Grant, May Tate, Bellona, and Wm. Duncan. This firm also contributed a handsome group of plants not for competition.

The first prize for six blooms of any sort of Pansy was gained by Mr. Alfred Hunt, with six fine blooms of William Dean, Fancy variety. Mr. Cooper, gardener to the Rt. Hon. Joseph Chamberlain, M.P., sent for decoration a fine group of plants. Judging from the great interest taken in the Pansies and Violas by the visitors a great impetus will be given to the cultivation of both plants in the district.

SPIRÆA CONFUSA.

UNDER this name Messrs. James Veitch & Sons have had a number of elegant shrubby plants in their flower house this season, and it seems so well adapted for forcing that it merits the attention of those who wish to provide as diversified a display as possible early in the year. The branches are very slender, bearing small oval slightly cut leaves and most abundant compact trusses of pure white flowers, which last a considerable time. *Spiraea confusa* (fig. 78) is as easily grown as any other form of the genus. A good loamy soil suits it, and after forcing the plants should be encouraged to make a free growth, which must be well matured out of doors in a sunny position, as they will thus gradually acquire an earlier habit of flowering. If planted out they should be lifted early in the year, potted, and introduced to moderate heat, as if placed in a strong heat they are not so satisfactory.

ARE POTATOES DEGENERATING?

IT was not till this morning (June 1st) that I saw the Journals of the 19th and 26th ult., in the former of which, at page 392, appeared some notes of mine on the above subject, and in the latter number at page 419 I see it is suggested that I am one of those enthusiastic growers who beg or buy tubers at exhibitions. I first thought of treating such a suggestive insinuation with the silence it deserves. I now write to inform the suggester that the dart has quite miscarried. Of the eleven international exhibitions I have been present but twice when the show was over, seldom staying after the first day, leaving others to remove my exhibits, which I gave them for eating purposes, "such well developed and carefully preserved tubers" not being in my opinion (after washing, perhaps scrubbing, and lying on the exhibition table exposed to a strong light for three days) either the best for eating or seed. I think had suggester been a frequenter of great shows in the metropolis during the last three or four years he would have abandoned the idea of such tubers having a chance of success in another competition, as they would be sure to be beaten by fresh ones, though not possessing their size and symmetry. That the exhibited tubers "invariably start stoutly and strongly" I deny. I have seen them so much damaged as to be worth little for seed purposes. To the question as to purchasing seed Potatoes I answer I have for the last seventeen years every season bought for seed from one or more of the following dealers:—Messrs. Veitch, Carter & Co., Hooper & Co., Daniels Brothers, R. Dean, Sutton and Sons, Johnson & Son, C. Sharp, C. Fidler, and W. Kerr. I have in the early spring exchanged many varieties with friends in other counties, and this, too, with the very marked result I have alluded to. In these last few lines of mine on this subject allow me to thank you, Mr. Editor, for inserting my notes on this very debateable question, and to say to suggester, When argument fails, consider! and of all things avoid personalities. Hit as hard as you like, but fairly, and keep your temper with your faithful friend—AUDAX INTREPIDUS.

THE HANDSWORTH NURSERIES.

THE members of the Sheffield Floral and Horticultural Society, together with delegates from other societies in the Yorkshire Association to the number of about seventy, had a very enjoyable excursion on Whit Tuesday to the Handsworth Nurseries of Messrs. Fisher, Son, & Sibray. Mr. Fisher, the senior member of the firm, being unfortunately confined to his house through illness, and the other partners being from home, the visitors were conducted through the extensive ranges of glass houses and over the more interesting portions of the nursery grounds by Mr. Williams, the able and courteous manager of the indoor departments.

The Orchid houses proved a great attraction, as they contain a very fine display of flowers of such showy plants as Cattleyas, Cypripediums, Dendrobiums, Lælias, Orlontoglossums, &c. Especially worthy of notice is a grand bank of large specimen Vandas, all flowering profusely, and being in the most vigorous health. The largest specimen of *V. tricolor planylabris* is unequalled in the kingdom. Most of the other specimens, which are numerous, of *V. suavis*, *V. tricolor*, &c., are 3 to 5 feet in height, with large very dark green spotless foliage down to the pot, and carrying each three or four large spikes of flower, prove unmistakably that Vandas find a congenial home at Handsworth.

Another principal point of attraction was a large span-roofed house full of the new decorative *Pelargonium* Duchess of Teck, for which the firm have just obtained a first-class certificate at the Manchester Whit-

suntide Show. This variety is a seedling raised at Handsworth with the fine foliage and sturdy habit of Madame Thibaut, but is much more floriferous. The flowers are similar in shape to that variety, being very round and smooth, many of them semi-double, and are pure white in colour. As a useful and popular market variety, and for cut flowers and general decorative purposes, it will, I believe, take very high rank indeed. A bouquet composed exclusively of its flowers was presented by the firm to H.R.H. the Duchess of Teck on the occasion of the opening by her of a workmen's exhibition at Elsecar some three months back, and it was by her special desire that her name was given to it. The plants were crowded with flowers, and a small bouquet from them was given by Mr. Williams to each visitor, a pleasing souvenir of a very enjoyable afternoon.

By request of Mr. Fisher two members of the party, Messrs. J. Udale and W. K. Woodcock, waited upon him at his residence, to which as above stated he was confined by illness, and received from him a cordial welcome and greeting to the Society, with a liberal subscription to its funds, and a strong invitation to the Society to repeat its visit at no distant date.—W. K. W.

BOUVARDIAS.

IN a previous article on the culture of these plants I referred to the leading points of their management, and I now offer a few additional remarks chiefly on the varieties. To produce good bushy plants of uniform size in one season they must be started early, and at no time must the plants receive the slightest check. The soil may be a rich fibrous loam, to which add leaf soil to about one-fourth that of the soil, with plenty of sharp sand, and add about a 48-sized pot of Clay's fertiliser to every barrowful of soil. This will make a good compost when the plants are shifted into 48-sized pots. In the first potting use sandy peat and loam in equal parts. Grown for market they do not come in for the serial shifts, a plan which in years gone by was adopted for most plants; they are, on the other hand, generally placed first in 2-inch or 2½-inch pots, and when sufficiently well rooted transferred to the marketable 48's. By careful treatment the death rate is very small, and much time is saved. The only attention afterwards is stopping them regularly till you have formed good plants, and finally the staking and tying, one stick being sufficient to each, and the shoots banked loosely to it. An occasional surface dressing of artificial manure when the plants are strong enough will greatly aid them, especially when they are forming the flower buds. Under no circumstance allow any insect pests to take possession of the plants, for they are attacked by several, such as red spider, mealy bug, and green fly, and where these occur the usual remedies should be applied.

The following are the best varieties. Among whites, *B. jasminoides* is one of the oldest, and still one of the best; it is fragrant and very free flowering, though not quite so vigorous as many. *B. Humboldtii* corymbiflora has the longest tubes of any, is pure white, highly fragrant, and most popular for any choice work; it is very vigorous and free, but not so continuous as the first named. *B. candidissima*, this is of compact growth, densely laden with bloom when planted out of doors, has a delicate perfume, and its flowers are pure white. Then comes the well known *B. Vreelandii*, which is invaluable as a white variety, and of which one cannot have too much. Among the brightest coloured varieties *B. Dazzler* and *B. Hogarth* are the best, to which may be added *B. elegans*; these three are good scarlets, and are generally grown in quantity by all the leading growers; all are of good habit, and are freely flowered, particularly the two first named. In these two batches we have the decided scarlet and pure whites, the other kinds, as *Vulcan*, *longiflora flammea rosea oculata*, *Maiden's Blush*, *Reine des Roses*, *Bridal Wreath*, *Flavescens*, *Priory Beauty*, and others come in with their various shades of colour, which, for the most part, is signified in their respective names. Then we have in doubles *Alfred Neuner*, pure white; *President Garfield*, flesh pink; besides which are scarlets in *Sang Lorraine*, *Vermilion Scarlet*, and *Victor Lemoine*. From these latest additions to this valuable group we have only to turn to such species as *B. triphylla*, *B. angustifolia*, *B. versicolor*, and *B. longiflora*, to find that if the rate of progress is not rapid, it is, to say the least, exceedingly well marked.—J. H. E.

A CLOSE ATMOSPHERE THE BEST FOR KEEPING FRUIT.

AFTER trying many ways of keeping fruit in a sound condition after it was matured, I have no hesitation in saying that it can be preserved best in a close atmosphere free from damp. King of the Pippins Apple is said to be a variety ready for use in November and December, but I have some fruit of it now that are almost as plump and fresh as they were in November. It is just about eight months since the fruit was harvested, and surely any Apple that can be kept for that time, or for four or five months after it is ready for use, as well as the system that preserves it, are worthy of attention. The fruit in question have been kept in a drawer, the atmosphere being very close and dry, and I am sure any quantity of Apples might be preserved in a place of this kind for months after they would be decayed in a damp or even ordinary fruit room. I have also noticed that so long as the American Apples are kept in a close barrel very few of them decay, but they are not long unpacked until many of them show spots and signs of decay. This would indicate that a close atmosphere is the best for preserving fruit. The other day I gathered a quantity of Strawberries. Some of them were put into a shallow box, covered closely over with paper, and in-

advertently left there for nine days. When I came across them I thought when the paper was lifted that they would only be a decayed mass, but I was surprised to find them almost as fresh as when gathered, and the flavour as good as ever. Had they been exposed to the air I am sure they would all have been quite decayed. When once Pine Apples are quite ripe they soon decay at the bottom and upwards if left in the hot damp house in which they have been growing, but I have frequently kept them for six weeks after being quite ripe in a cool close room. Dry cool conditions are undoubtedly the best for preserving fruit. Ten days ago I gathered a ripe Peach from a Hale's Early tree in a pot. I placed it on a marble slab in a dry room, and in looking at it now I find it as fresh as on the day it was gathered.—A KITCHEN GARDENER.

LEPTOSPERMUM BULLATUM.

AMONGST neglected hardwooded plants must be ranked the charming *Leptospermum bullatum*, a free-growing floriferous plant that oughz



Fig. 79.—*Leptospermum bullatum*.

to be in every greenhouse. Mr. B. S. Williams, Upper Holloway, has some beautiful little specimens this season in his nursery, plants in 48-size pots being small pyramids of pure white flowers, and the smallest plants seem to flower equally freely. So profusely are the blooms produced that in some instances the narrow dark green leaves can scarcely be seen, and the branches are covered their whole length with snowy flowers.

In a compost of peat, sand, and light turfy soil this *Leptospermum* grows quickly and flowers frequently, the only special care it needs being in the affording good drainage and supplying water carefully.

POTATO DISEASE—MULCHING.

SINCE 1845 the Potato disease has, despite the researches of science and the efforts of cultivators, gone its course. Some years there is com-

parative freedom from disease, and in others the Potato is virulently infested. The Potato haulm is rendered susceptible of disease by some predisposing agency, for until that condition is assumed it affords no nidus, in fact is proof against its attack. We have seen patches or tracts of land over a wide or restricted area where the disease clears all before it, leaving, however, patches comparatively scatheless. We know also that certain conditions of soil not only as to moisture and location, but as to constituents, natural or applied as manures, have influences on the Potato in respect of freedom from disease. The Potato ought to do well on clays through being rich in potash, but such soils are cold, and the crops are very susceptible of disease. Potatoes do very well on sandy soil though containing but a trace of silica, and grow well on limestone or chalk, though they contain next to no lime, and are aided by potash and phosphates, whether from farmyard dung or artificials, plenteous crops of Potatoes on siliceous and calcareous soils are had with increased liability to disease. In England we have Potatoes grown on fen land, which are, I submit, unwholesome as human food. The land being suited to them is no apology for their being thrown on the markets. Is the Potato a flat low-lying country plant? I doubt it, for does it not contain more nitrogenised matter grown on siliceous and calcareous soils than in the bog-like soils of fens? No one will eat them that can get those grown on soils and in a climate more favourable to the formation of nitrogenised matter. Who, indeed, will look at them other than the necessitous? Turn them into pork by all means, it will save importing bacon and benefit the grower and consumer greatly.

In order to avoid disease, early planting, avoidance of soil or manure likely to induce grossness of haulm, and the selection of varieties with a steady ligneous haulm are the three cardinal points in Potato culture. The hardest varieties withstand the fungus longest, and *vice versa*, fresh manure tends to grossness of haulm, are well-known facts. There are, however, other factors to be reckoned with besides disease, which, if not so destructive, are very prejudicial to the crop. There is super-tubering, which is a consequence of check given the growth by drought after the Potato has commenced tubering. Super-tubering occurs more frequently on good soil than on poor; indeed it is not so troublesome in the latter to anything like the same extent, for the plants overtaken by prolonged drought ripen the crop as it is, and the tubers are small, sound, and of high quality, but of the crop the least said the better. Super-tubering is therefore resulting of the same cause which tends to disease. It may seem paradoxical, but it is really a too rich soil and gross plant that causes super-tubering, albeit it is attributed to the drought just as the disease is to the dripping atmosphere. Mulching so far as I know in no way contributes, but in preventing super-tuberation the tendency is to an earlier maturation of the crop, therefore greater likelihood of freedom from disease.

Instead of putting in the manure at planting about the sets if the land needs enrichment I apply manure in autumn; but I do not advise autumn manuring only as a matter of convenience, though it can do no great harm in heavy soils, but on light soil much of the manurial matter will be washed out long before the time of putting in the crop. I therefore advise the manure, if any is used prior to planting, to be applied some little time only before putting in the crop, and to the whole of the ground, and only lightly ploughed or pointed in, having it reduced by turning and mixing as to be in good working order. Placing fresh manure in the ridges immediately in contact with the sets is a bad practice—bad as regards disease, worse in respect of super-tubering, and of least benefit as aliment. Our aim should be to encourage surface roots and give the Potato as much advantage as possible of the ameliorated soil and matter assimilated in it as plant food. This is effected by the ridge system of culture. On a light soil I plant with the sets 3 to 4 inches deep on the flat; in a heavy soil I plant on the surface or make the least possible furrow, and cover the sets with soil as in moulding to the depth named. The crop is hoed once or twice to destroy any seed weeds, and not deep, as the roots will be near the surface, and it is the fibres that collect the food for forming the tubers. Earth them as soon as ready, not being afraid of making the ridges a good width, nor of giving the plants too much ameliorated soil to grow in, and let it reach up to the stems, giving a depth altogether of 6 inches above the set, or for strong growing sorts a little more. This should be done in good time, or before the fibres have extended into the space that will be disturbed by the moulding. The roots will reach the limit of the ridges quickly and extended across the spaces. They feel the influences of the atmosphere and warmth of the sun, and the growth is sturdy and well solidified owing to the reciprocal action between the tops and bottoms. When the crop is well on the way the ground having had time to become warmed and the roots extended to the outside of the ridges, mulch the whole space between the ridges and their sides, but not top with the manure that under ordinary methods would have been put in the ridge furrow under or over the sets. Dispose it evenly and an inch or so thick. Any rough material will do, as it will longer serve its purpose as a mulch. The time the mulch is put on depends on circumstances; some plant early sorts in February or early March unsprouted; others do not plant until the end of the latter month or early April with the sets sprouted half to three-quarters of an inch. Such should be mulched soon after the middle of May, the second earliest early in June, and late varieties soon after or at latest by midsummer. It is necessary that it be done before there is danger to the tops by its application and before dry hot weather. As a rule it may be done from a fortnight to three weeks after earthing, or upon a push of work in prospect immediately after.

Mulching encourages surface roots, keeps and feeds with the dews of drought, insuring a steady and progressive growth, making them inde-

pendent of the weather or less susceptible of checks. The current crop is better, and the succeeding has the soil enriched for it by the mulch, in the only way securing of its many virtues. It does more—viz., it reserves all the resources of the soil for the benefit of the current and following crop. It prevents weeds growing, therefore the Potato haulm has the benefit of the sun, of a free circulation of air, and those solidify the haulm, enable that to assimilate the sap and transmit it to tubers, large in size, and having the matter of which they are built nitrogenised in proportion to the elaboration of the sap, the criterion of quality. The disease cannot be avoided? I think it can, but certainly not by the variety we now possess; at least, not until it has a hardier nature, and which I feel certain it will have. But can nothing be done to prevent and mitigate it? Of course, the tops can be pulled up as soon as it appears in the haulm, and the tuber be saved; but what is the good if the haulm is allowed to fester on the soil? What becomes of the spores? Surely when the fungus is young in the leaves and stems it could be prevented by burning the haulm. The haulm, instead, is left filling the soil with reproductive germs. Then there is the Potatoes left to foul the soil, it may be fill it with spores ready to fasten on the succeeding cropping of the ground with Potatoes. There is also allowing diseased crops to remain for the fungus to pursue its course of destruction, not a hand raised to remove the diseased haulms, and the land is left as full as can be of the fungus.

Soil should be well limed. It may be objected that lime is no deterrent. It will not kill the spores, but it may liberate organic matter to feed the crop in the earlier stages of development and induce earlier maturity, therefore preventing disease, and it may have a mechanical action on the soil favourable to the Potato in growth and in preventing disease. No harm can come of a dressing of lime in spring—eighty bushels per acre, or if containing much vegetable matter as obtains on freshly broken up land, or rich from heavy dressings of manure and repeated croppings, double the quantity may be applied advantageously. The value of lime is also great as a base for the formation of nitrates, especially so in soils full of humus. As a destroyer of fungus gas lime is perhaps unequalled. Five tons per acre is an ample quantity, applied to the surface not later than February, and lightly harrowed or pointed in. It is also good against slugs and other vermin.

As to the rotation, if Potatoes follow Potatoes rest assured it will bring soapy excrements; the tubers will be wanting in nitrogenised matter, the haulm will be long and weak, and the crop will not correspond. Every alternate year is as frequent as land ought to be cropped with Potatoes, and the best preceding one is a Leguminous crop or cereal.

Seed tubers also have a considerable influence on the crop and its freedom from disease. This also points in the direction of the Potato being a hill plant, and seed tubers from a cold and distant locality have greater vigour than those reared and grown on low for a number of years, which are much feebler in growth and more susceptible of disease. A change of seed from a clay to a sand is good in the same locality, and it is better still when the locations are distant. Seed from a northerly part is marked by a stronger haulm, a better crop, and enhanced in freedom from disease, but under any circumstances changing the seed is good, and better still is the origination of strong-haulmed varieties, which, however, are, for the most part, marked by a decline of nitrogenised matter and a depreciation of using quality. Medium-sized sets are best, except for the early varieties, and for these the sets can hardly be too strong, only the eyes are reduced to one or at most two, so as to insure strong haulm, large even-sized tubers, and as few chasms as possible. Cutting the sets is commendable, especially with early varieties; but it tends to earliness of crop, and to a more even-sized crop from the cut having fewer eyes to start growths than the uncut. Dressing the tubers with quicklime before planting is a capital plan. It dries up the wounds caused by cuts, makes the Potato less palatable to slugs and grubs, and may have a destructive or deterring effect on fungoid germs.—UTILITARIAN.



AN INTERNATIONAL EXHIBITION OF INDUSTRY, SCIENCE, AND ART AT GLASGOW is being arranged for 1888. The prospectus has been issued with long lists of Committees and a diversified schedule. A large section will be devoted to agriculture, horticulture, and arboriculture, the other classes being of a miscellaneous character, including machinery appliances, various natural and artificial products, furniture pottery, glass, jewellery, paper, and printing, &c.

— THE GARDENERS' ORPHAN FUND.—A meeting of the Subcommittee that was appointed to make the necessary preparations for establishing the fund on a sound basis met in the Council room at Chiswick on Friday evening last, Mr. G. Deal presiding. Several hours were spent in the preparation of rules, and the meeting was adjourned

till next Friday. Intimations of support of an encouraging nature have been received, and it is expected that an organisation fraught with much benefit will start under favourable auspices.

— MESSRS. WM. PAUL & SON, of the Waltham Cross Nurseries, send for our inspection some blooms of LILAC MARIE LEQUAY, a French variety recently introduced to this country. It appears to us to be the finest of the White Lilacs, both as regards size of pip and the trusses of blooms. The variety alba grandiflora, which we have hitherto considered a very superior white Lilac, suffers considerably by comparison.

— A CORNISH correspondent sends us flowers of the handsome and delicate ABUTILON VITIFOLIUM, and remarks that he has "a specimen 14 feet high and 32 feet in circumference, 6 feet from the ground, growing out of doors, in a position sheltered from the north, east and west." This fine Chilean shrub is occasionally seen in collections of rare plants in cool houses or conservatories, and we remember seeing a good example in one of the late Mr. Joad's houses at Wimbledon. Except in such climates as that in the extreme west of England it would not be safe out of doors. The flowers are large and open, with broad ovate petals of a delicate purplish mauve tint, and are produced in great freedom.

— WE are requested to state that the HEREFORD AND WEST OF ENGLAND ROSE SHOW, advertised in our columns to take place on Tuesday, July 8th, has been unavoidably postponed to Friday July 15th. All communications are to be addressed to the Hon. Sec., H. P. Bulmer, Esq., Credenhill Rectory, Hereford.

— THE CALCEOLARIAS AT BEDFORD HILL HOUSE, BALHAM, as grown by Mr. W. Rapley, have been a feature of interest during the past eight or nine years, and this year, though the plants are not so large as usual, the effect produced is as rich and the varieties as fine as ever. It is the last display of its kind that will be seen there, as the ever-increasing army of London builders have reached the fine old residential estate, and will soon overrun it. Mr. Rapley is consequently in search of another charge, and it is hoped it may be such as to enable him to continue improving and growing so well his excellent strain of Calceolarias.

— MANCHESTER SHOW.—Messrs. Wm. Wood & Son write, "May we beg the favour of the correct notice in the next issue of your paper" of the award of our silver medal "for the best dish of Strawberries" at the Manchester Show last week to Mr. Chuck, gardener to P. Thelluson, Esq., Bradsworth, near Doncaster. This was overlooked in the Show report, and some of the papers have the name of another exhibitor as the recipient of our medal, which is misleading."

— MR. J. HAM, writing respecting FRUIT PROSPECTS IN WORCESTERSHIRE, observes:—"I never remember seeing the Apple trees looking so promising as at the present time. The trees look like monster bouquets; the bloom is evenly distributed to the centre of the trees in large orchard trees. Plums are well set for a moderate crop; Peas are setting well for a heavy crop; Apricots are a good crop; and bush fruit very promising."

— MR. A. HARDING writes from Orton Longueville:—"Many curious places have been noted where ROBINS BUILD THEIR NESTS. Two or three years ago I found a nest with eggs in a large plant of the Elk's Horn Fern (*Platycerium aleicorne*) then growing in a vinery here. A few days ago I found another robin's nest in a plant of *Adiantum farleyense* growing in a 12-inch pot. The plant is in a warm greenhouse with small Palms, &c., used for indoor decorations, and one of the top lights is nearly always open a few inches. That is the only place I can find where the bird comes in and goes out. To-day, June 2nd, I looked at it, and found there six eggs in it. Care will be taken of it."

— A KENTISH correspondent writes on RAIN v. INSECTS:—"The recent rains may have done some harm, but they have also been beneficial. I find in some of the orchards the destruction of young caterpillars in consequence has been very notable, and the continued moisture must have been prejudicial to all the aphid tribes."

— MR. F. GIFFORD writes that "CHRYSANTHEMUM EXQUISITE, a pure white single variety, sent out by Mr. T. S. Ware this spring, is really fragrant and much sweeter than any Chrysanthemum I know."

— THE Committee of the SHEFFIELD AND WEST RIDING CHRYS-

ANTHEMUM SOCIETY have determined to increase the value of the second and third prizes in the chief class for forty-eight blooms in thirty-six varieties, the amounts now standing as follows:—First prize, a silver cup value 15 guineas, with £10 in cash; second £10; third £5—total £40 15s. in one class. This ought to encourage superior cultivation, and result in great competition at Sheffield on November 18th.

— GARDENING APPOINTMENT.—Mr. G. King, recently gardener at Wolsey Grange, Esher, has been appointed gardener at Glenechess (not Glenhurst as recently given), Loudwater, Rickmansworth, Herts.

— MR. J. MAIN has sent us samples of MUSHROOMS from a bed that was spawned in November and recently commenced bearing. Finer specimens no one could desire to see. They varied from 4½ to 6 inches in diameter, yet possessed all the freshness of youth and were in the best condition for use. Each had been carefully cut and wrapped in tissue paper, hence they were quite free from grit. We have received many from time to time that were rendered useless through want of care in packing.

— PHOTOGRAPHS OF LIGHTNING.—The Council of the Royal Meteorological Society are desirous of obtaining photographs of flashes of lightning, as they believe that a great deal of research on this subject can only be pursued by means of the camera. The Council will be glad to receive any assistance in the form of copies of any photographs of flashes of lightning sent to the Secretary, 30, Great George Street, Westminster, S.W. It may perhaps be well to mention that the photography of lightning does not present any particular difficulties. If a rapid plate and an ordinary rapid doublet with full aperture be left uncovered at night during a thunderstorm for a short time, flashes of lightning will after development be found in some cases to have impressed themselves upon the plate. The only difficulty is the uncertainty whether any particular flash will happen to have been in the field of view. The Council hope that now the thunderstorm season is approaching, many photographers may be found willing to take up this interesting branch of their art.

— AT the ordinary meeting of the ROYAL METEOROLOGICAL SOCIETY, to be held at 25, Great George Street, Westminster, on Wednesday, the 15th instant, at 7 P.M., the following papers will be read:—"Amount and Distribution of Monsoon Rainfall in Ceylon generally, with remarks upon the Rainfall in Dimbula," by Francis J. Waring, M.Inst.C.E. "Note on a Display of Globular Lightning at Ringstead Bay, Dorset, on August 17th, 1876," by H. S. Eaton, M.A., F.R.Met.Soc. "Ball Lightning Seen during a Thunderstorm on July 11th, 1874," by John W. Tripe, M.D., F.R.Met.Soc. "Appearance of Air Bubbles at Remenham, Berkshire, January, 1871," by Prof. T. G. Bonney, F.R.S.

— CHRYSANTHEMUM EXHIBITING.—In regard to the controversy just closed between Messrs. Garnett and Molyneux, the "Yorkshire grower," referred to wishes to state that, "having competed successfully at two of the leading Chrysanthemum exhibitions in the kingdom, and defeated—amongst other noted growers—one who has taken a total of 105 prizes for Chrysanthemums, he thinks he may fairly lay claim to having met and defeated some of the best men in England at the leading shows; and Mr. Molyneux's suggestion to the contrary on page 419 is misleading."

— AN ORNAMENTAL MOUND.—In the Forbury Garden, Reading, is a mound at the juncture of two paths that is rendered charming by a simple combination of plants. The centre is occupied by blue German Irises, intermixed with the variegated *Phalaris arundinacea*, and the rather steep sides of rocks are clothed with irregular clumps of *Iberis sempervirens*, flowering freely. The white flowers of the latter, the blue flowers of the Iris, and the white-striped leaves of the *Phalaris* harmonise most pleasingly and effectively.

— THE June number of the KEW BULLETIN is devoted to a review of the "Botanical Stations in the West Indies," their productions and resources. Much reliable information is given on these matters, and a kind of federation for botanical and economic purposes is proposed. The report concludes as follows:—"Considerable interest is being taken at Kew in this attempt to group scattered colonies, and place them in a position to help each other in the development of local industries. The discussion of this scheme has already suggested the possibility of forming botanical stations in the several West African Settlements which are making an effort to turn to good account their

natural productions. These have not hitherto been so largely utilised as they might be. The efforts made for so many years to assist colonial industries by Kew has naturally thrown upon this establishment a large share in solving the botanico-economic questions which have affected the colonies during the last fifty years. As a natural process of growth, it is only reasonable to expect that well-marked groups of colonies should combine as regards questions of scientific and industrial interest, and that Kew should deal directly only with the recognised centre, from which would be distributed such special information and such collections of seeds and plants as are specially suited to local circumstances, and which could from time to time be reinforced from Kew. How far schemes of this kind can be carried out remains to be seen. At present there are good grounds for believing that the scheme will soon be on its trial in the West Indies, and the experience gained there will greatly assist in laying down the details of a further scheme that may prove of great value to the West African Settlements."



THE GRANGE, WALLINGTON.

"MY GARDEN," is widely known as one of the most interesting private establishments around the metropolis, and is not only known by reputation but through the liberality of its owner, A. H. Smee, Esq., in throwing it open annually to visitors, it is familiar to a large number of persons resident in the neighbourhood, and to others who have travelled from a distance to avail themselves of the privilege so generously accorded. It has been found necessary this year to restrict the admission to certain days, and to those who have tickets, which are, however, readily procured. During May and June this quaint and unconventional garden is in its best and freshest condition, and a most enjoyable hour can be spent in viewing its varied attractions, its picturesque tree-shaded walks and Fern glades, its crystal-like streamlets, rivulets, and miniature waterfalls, the choice collection of Orchids, or the wonderful collection of fruit trees. Usually the handsome scarlet Hawthorns which brighten the shrubberies or clothe the banks of the lake with a richness of colour dipping to the surface of the water, are in the best form ere this, but the late season has told upon them, and they are only just expanding their flowers. In one sheltered nook the Rhododendrons are, however, flowering well, the Laburnums are bearing their golden racemes in profusion, some old Quinces are covered with large flowers, while the purple Hazel peeps out at intervals with its bright distinct foliage in beautiful contrast with the fresh green tints around. The graceful Ostrich Ferns, *Struthiopteris germanica* and *pennsylvanica*, have thrown up their towering bright green crowns of fronds; the elegant *Carex pendula*, with its dark drooping spikes, which is so abundant at the sides of the glade walks, are the special features of that part of the garden. There are numberless other plants of interest, such as *Adiantum pedatum*, which has been out for several years and appears quite hardy, though of course the position is a sheltered one. *Pteris cretica* also succeeded for some time, though now lost, but it is thought this is due to an accident, and not to its being killed by frost. Then in one nook in a large box frame with a glass top is a fine specimen of *Todea superba* with fronds 3 feet long from tip to base. We must not omit to mention a fine band of the white and blue *Scilla nutans*, which renders a border adjoining the lawn very beautiful. The plant grows strongly and bears spikes of great length with large drooping bells.

The Apple trees, of which there are 325 varieties, have been very handsome with their abundant flowers, and there is likely to be a fine crop of fruit. Small fruits are not quite so abundant as last year, but very promising, Strawberries flowering freely, and the vegetables are now advancing rapidly under the stimulating influences of a higher temperature and abundant moisture.

But we must turn to the Orchid houses, for in them there is much to admire just now. With such a varied and extensive collection there is no period in the year without some special attraction, but at the present time Mr. Smee has a large number of plants of *Cattleya Mossiae* in flower; and as he has given much attention to the formation of the collection, purchasing all the best forms he could procure, or selecting them from imported plants flowered at The Grange, it is not surprising that he has now a series of varieties that for distinctness and richness could scarcely be surpassed. They constitute alone a study of much interest, and show at once the range of variation pos-

sible in a species, and how well marked many minor characters are in the discrimination of such forms. One notable character is seen in the form and position of the petals; in some they are spreading and even in outline, in others they are gracefully arched or drooping, these being usually much broader and the flower larger than the others. In the lip also a considerable difference is observable in the form. Some have the lateral lobes unfolded over the column, so as to form a long tube, and then the expanded front portion is more or less rounded; in others the tube is very short, and then the front portion is longer, oblong, elliptical, and show the colouring in the throat better. The coloration is much varied. In some a crimson tint predominates; in others the yellow or orange is chiefly seen. Occasionally an orange or gold tint seems to underlie the crimson, and then an intense magenta shade is produced of remarkable richness. The colouring is either solid to the margin or broken up into veins on a lighter ground, in some cases on pure white, and the effect is then very beautiful; the margin is commonly lighter or pure white and frilled. At the base of the lip there is a rich veining of crimson or other similar shades that in the more open forms is well seen. Three of the most distinct have been selected for names, one of which, *C. Mossiae* Mrs. Smee, is an extremely handsome variety, represented by an admirable specimen, bearing seventeen fine flowers. The petals are 4 inches long by $3\frac{1}{2}$ inches broad, drooping gracefully; the lip is open, $2\frac{1}{2}$ inches in diameter, beautifully and deeply frilled and crisped at the margin, of a very rich golden hue in the throat, running up the sides of the lip, the centre magenta, broken towards the edge, which is like the sepals and petals, a bright rosy mauve tint. *C. Mossiae* Dr. Duke is another distinct form with bold flowers delicately tinted with a bright golden orange colour predominating in the lip. *C. Mossiae* Cummingsiana [named after Mr. Smee's intelligent gardener, Mr. G. W. Cummings] is notable for the neatly fringed lip with a golden bronze or coppery centre. Many others could be mentioned showing almost equal divergences of character, and all have a capital effect arranged with the Ferns.

In the same house *Laelia purpurata* and *Cattleya Mendeli* are still handsome, while there are numbers of other Orchids of special interest, such as the useful *Dendrobium thyrsiflorum* with very long racemes of large flowers like the variety *Walkerianum*; several *Brassias*, such as *Keiliana*, with narrow sepals and petals, dark reddish at the base, tipped with orange, and a yellow lip; *B. Antherotes*, nearly black at the base of the petal, with the upper part yellow; and the greenish yellow *B. verrucosa*. *Laelia cinnabarina* has a number of its bright orange scarlet flowers that are seen to excellent advantage amongst the other lighter coloured flowers. *Cypripedium Lawrencianum* is represented by a remarkably fine variety, the dorsal sepal $2\frac{1}{2}$ inches across, and veined with very rich dark crimson tipped with white. The rosy crimson *Broughtonia sanguinea* is grown on teak and cork blocks, but the plant on the former seems to be much more happy than the other. Some old stems of Tree Ferns have been purchased for Orchid blocks, and are cut into segments of suitable size, according to the plants to be placed on them. These are found better for many epiphytal Orchids than wood, and when well moistened and the plants secured to the cut surface it is surprising how rapidly the roots penetrate the substance.

Other plants flowering in the fernery are a form of *Masdevallia Veitchiana*, supposed to be a natural hybrid between *M. Davisii* and *Veitchiana*, a very fine dark variety of *M. Chimara*, *M. Houtteana*, and *M. rosca*, very free; *Epidendrum vittellinum majus*, good variety; *Odontoglossum laeve*, *O. maculatum*, which has been flowering for several months; *Lycaste Skinneri*, that has been in flower since Christmas; the pretty yellow *Oncidium concolor*; and *Dendrobium luteolum*, *Odontoglossum Rossi majus*, with very large flowers; *O. maculatum*, dark variety; *O. Pescatorei*; *O. citrosum*, with long drooping racemes; *Oncidium macrautubum*, showing its long panicles; *Dendrobium clavatum*, *Cypripedium Lowi*, and *Hookeri*, the neat distinct *Vanda cristata*, and the curious *Pleurothallis Barberiana*, with hair-like racemes of minute semi-transparent flowers dotted purple, and the *Aerides*-like *Thrixspermum Berkleyi*, with a knob-like lip. Trained to the roof are plants of *Bail of Fire* *Tropeolum* almost constantly in flower, and the Elvaston variety of *Stephanotis floribunda*, together with several plants, in pots or planted out, of *Begonias*, *Asclepias curassavica*, and the graceful profuse *Hoya Paxtoni*, which is so well adapted for suspending in pots from the roof of a house.

Houses are devoted to *Masdevallias*, of which a large collection has been formed, comprising many of the small-flowered species, and also of the large and richly coloured *Harryana*, *Lindenii*, and *igneae* types. The following are flowering now—*amabilis*, *Benedictæ*, *Chimara*, *Estradae*, *Hurryana* var. *conchiflora*, *cærulescens*, and *sanguinea*, *igneae superba*, *Lindenii*, *ochthoides*, *rosea*, *Shuttleworthii*, *Trochilus*, *Veitchiana*, *Wagneri*, *Chestertoni*, *ludibunda*, and *simula*. With these are also many *Odontoglossums*, such as *crispum*, *cirrhum*, *cordatum*, *maculatum*, *laeve*, *Pescatorei*, *procnitens*, and *Rossi majus*.

One plant of *M. ochthoides* is remarkable for having been in flower constantly for six years, and has now a number of flowers. Some *Satyrums* are being grown in this house with *Disa cornuta*, *D. sagittalis*, and the blue *D. Herscheli*, and several *Pinguiculas*, all very interesting and thriving satisfactorily. An adjoining house is devoted to *Lælias*, *Cattleyas*, *Dendrobiums*, and miscellaneous Orchids, including some rare and valuable specimens. *Phalaenopsis*, *Aerides*, and *Vandas* also have a house appropriated to them, and are making good progress. The interesting experiments in hybridising have been continued, and a number of pods are swelling. Unfortunately this is the least difficult part, but obtaining good seed, and then inducing this to grow, require much care and patience.

A little animal that performs good service in Orchid houses in destroying insects, the green frog (*Hyla arborea*), is very abundant at The Grange; and though a native of the warmer parts of Europe it seems to have become acclimatised there, for some turned out in the garden last year have survived the winter, and their sharp croaking may be occasionally heard in the trees for some distance around.—LEWIS CASTLE.

ROYAL NATIONAL TULIP SOCIETY.

The Jubilee Exhibition of this old Society took place on June 4th, in the Exhibition House of the Manchester Botanical Society, Talbot Road, Old Trafford, and, in order to make the Show commemorative of the Jubilee of Her Majesty, the prizes hitherto offered were considerably increased in amount. Every effort was put forth by growers to exhibit on this occasion, and, considering how cold and retarding the weather has been—in fact, it is one of the latest seasons for Tulips known for years past—the Show was a remarkably good one. There was a much larger number of blooms than was expected, and if they were a little undersized they were pure in the ground and bright in colour, and in some instances very correct in their marking. Mr. Barlow will be at his best ten days hence, and what few flowers he was able to show had been in not a few instances “steamed” into expansion in a high and moist atmosphere. As is usual, the Rev. F. D. Horner, Low-fells, Kirkby Lonsdale, helped by his excellent Tulip house, was again well to the fore, as usual carrying off the chief prize. It is satisfactory to know not only that a considerable addition was made to the money value of the prizes, but that a few young growers put in an appearance for the first time, and though the old hands drop off one by one, others are found coming forward to take their places.

A selection of the best flowers shown on this occasion may prove useful to such of our readers as are interested in the Florist's Tulip. The best feathered bizarres were Commander (very fine on this occasion), General Grant, deep yellow, feathered with bright red; William Wilson, Garibaldi, Sir Joseph Paxton, and Masterpiece, the latter in beautiful form, the feather-colouring so dark as to be almost black. The best flamed bizarres were Dr. Hardy, very fine; Sir J. Paxton; Polyphemus, a flower that is nearly or quite eighty years old, and on this occasion very finely marked; Orion, Ajax, and William Lea. Feathered roses were more numerous than any other class. The best were Annie McGregor, Mrs. Lea, Mrs. Thurstan, with rich crimson-scarlet markings; Nanny Gibson, Mrs. Lomax or Mabel, Heroine, very good; Julia Farnese, with a heavy bright scarlet feather; Modesty and Industry, both very good. Flamed roses: Annie McGregor, very fine; Mrs. Lea, a good but very scarce variety; Mrs. Lomax, Lady C. Gordon, an old variety, shown on this occasion in very fine form; Rose Celestial and Aglaia, an old but very useful flower, though somewhat narrow in the petals. Feathered byblœmens: This is a scarce class at all times, and on this occasion the best flowers were Mr. Cooper, Adonis, Bessie, the flowers as pure as could be desired; Mrs. Jackson, with its exquisite black feathering, and a seedling in the way of Friar Tuck, of which more will no doubt be heard next season. The best flamed bizarres were William Parkinson; Talisman, very fine; Walker's Duchess of Sutherland, this old variety being seen in good condition; Carbuncle, very fine, in the way of Adonis, and in the opinion of some good judges the best-flamed flower in the show; and Alexander Magnus. The best bizarre breeders were Sir J. Paxton; Horatio, a grand flower; William Lea, and William Wilson. The best rose breeders, Miss B. Coutts, Annie McGregor, Mrs. Barlow, and Mabel. The best byblœmen breeders, Alice Grey, light lilac, always pretty and good; Glory of Stakehill, and Beauty of Litchurch.

The cup class, as it is termed, for twelve dissimilar Tulips, two feathered and two flamed, in each class, brought five “pans,” as they are termed, the Rev. F. D. Horner, Kirkby Lonsdale, being placed first, and so repeating his victory of last year, staging remarkably good blooms of bizarres, feathered, Sir J. Paxton and Orion; flamed, Commander and Royal Sovereign; roses, flamed, Mabel and Mrs. Lea; feathered, Nanny Gibson and Annie McGregor; byblœmens, flamed, Talisman and Walker's Duchess of Sutherland; feathered, Friar Tuck and Mrs. Cooper. Second, Mr. James Thurstan, Albany Road, Cardiff, who had a very good lot also, consisting of bizarres, flamed, Sir J. Paxton and Polyphemus; feathered, Masterpiece and Asclepias (Thurstan); roses, flamed, Aglaia and Lady Catherine Gordon; feathered, Industry and Mr. Thurstan (Thurstan); byblœmens, flamed, Talisman and Duchess of Sutherland; feathered, Seedling and Eclipse. Third, Mr. D. Barber, Stanton-le-Dale, who had bizarres, flamed, Sir J. Paxton and Defiance; feathered, Masterpiece and Seedling; roses, flamed, Mary Barber, an improved Mabel, and Triomphe Royal; feathered, Industry and Annie McGregor; byblœmens, flamed, Duchess of Sutherland and Talisman; feathered, Mrs. Hepworth and Trip to Stockport. Fourth, Mr. Alderman Woolley, Stockport; and fifth, Mr. J. H. Wood, Royton.

In the class for six dissimilar Tulips, one feathered and one flamed, in each class, the Rev. F. D. Horner was again first with bizarre, flamed, Sir J. Paxton; feathered, Masterpiece; roses, flamed, Mabel; feathered, Nanny Gibson; byblœmens, flamed, Talisman; feathered, Mrs. Cooper. Second, S. Barlow, Esq., J.P., Stakehill House, Castleton, with bizarres, flamed, Sir J. Paxton; feathered, General Grant; roses, flamed, Mabel; feathered, Modesty; byblœmens, flamed, Carbuncle, very fine indeed, and gene-

rally regarded as one of the best flamed flowers present; feathered, unknown. Third, Mr. Alderman Woolley with bizarre, flamed, Sir J. Paxton; feathered, seedling, supposed to be John Hart; roses, flamed, Aglaia and Mabel; byblœmens, flamed, Adonis; feathered, Seedling, very promising. Fourth, Mr. J. Thurstan; fifth, Mr. J. H. Wood; sixth, Mr. Joseph Boyde, Lowton.

Next came a class for the same number of flowers, the competition open to half-guinea subscribers only. Here Mr. Wright, Prescott, Lowton, was first with bizarre, flamed, Sir J. Paxton, and feathered, Masterpiece; roses, flamed, Aglaia, and feathered, Industry; byblœmen, flamed, Talisman, and feathered, Adonis. Second, Mr. R. Woolfenden, Royton, with bizarre, flamed, Excelsior, feathered, Masterpiece; roses, flamed, Mabel, feathered, Modesty; byblœmen, flamed, Talisman, feathered, Mrs. Jackson. Third, Mr. Thos. Simpson, Derby, with byblœmen, flamed, Sir J. Paxton, and feathered, Masterpiece; roses, flamed, Mrs. Lomax, and the same feathered; byblœmen, flamed, Duchess of Sutherland and feathered Proserpine. Fourth, Mr. A. Fearnley, Lowton. Next came a class for three feathered Tulips, one in each class. Mr. Alderman Woolley being first with bizarre, Masterpiece; rose, Alice; and byblœmen, Seedling. Second, Rev. F. D. Horner, with bizarre, Royal Sovereign; rose, Modesty; and byblœmen, Mrs. Cooper. Third, Mr. T. Simpson, with bizarre, Masterpiece; rose, Industry; byblœmen, Proserpine. Fourth, Mr. W. Dymock, Stockport. Fifth, S. Barlow, Esq., J.P. Sixth, Mr. Isaac Hesford. Ten stands competed in this class. In that for three flamed Tulips, one of each class, there were seven competitors, and the Rev. F. D. Horner was placed first with bizarre, Sir J. Paxton; rose, Lady Sefton; byblœmen, Talisman. Second, S. Barlow, Esq., with bizarre, Sir J. Paxton; rose, Mabel; byblœmen, William Parkinson. Third, Mr. Alderman Woolley, with bizarre, Sir J. Paxton; rose, Chancery; byblœmen, Aglaia. Fourth, Mr. J. Thurstan. Fifth, Mr. J. H. Wood. Sixth, Mr. R. Woolfenden. The next class was for maiden growers only. Three prizes being offered for two Tulips, one flamed and one feathered. Mr. T. Simpson was awarded the first prize with byblœmen, flamed, Sir J. Paxton, and bizarre, feathered, Masterpiece. Second, Mr. Isaac Hesford, with bizarre, feathered, Lord Lilford; and byblœmen, flamed, Adonis. The following class was a similar one, and open to all. Here Mr. Alderman Woolley was first with bizarre, flamed, Sir J. Paxton; and byblœmen, feathered, Seedling. Second, Rev. F. D. Horner, with bizarre, flamed, Dr. Hardy, and bizarre, feathered, Masterpiece. Third, S. Barlow, Esq., with bizarre, flamed, Dr. Hardy, and bizarre, feathered, General Grant. Fourth, Mr. Thos. Simpson; fifth, Mr. H. Housley; sixth, Mr. Jas. Thurstan. Twelve stands competed in this class.

Then followed the classes for single bloom in each class, a large number being staged and ten prizes awarded in each. Bizarre feathered.—First, S. Barlow, Esq., with William Wilson; second, with Garibaldi, and tenth with a seedling; third, Mr. Alderman Woolley, with Masterpiece, seventh with seedling, and ninth with John Mills; fourth, Mr. H. Housley, with Duke of Devonshire; fifth, Mr. T. Simpson, with Sir J. Paxton; sixth, Mr. Thomas Wood, with an unknown flower; eighth, Mr. J. Thurstan, with Seedling. Roses, feathered.—First, Mr. Moorhouse, with Heroine; second, Mr. D. Barber, with Industry, and eighth with Sarah Heady; third, Mr. J. Thurstan, with Heroine; fourth, Mr. Simpson, unknown, fifth with Industry, and ninth with Mrs. Lomax; sixth, Mr. Woolley, with Julia Farnese; seventh, Mr. W. Prescott, with Mrs. Lee; tenth, Mr. J. Boydell, with Isabella. Byblœmen feathered.—First, Mr. Woolley, with a seedling, finely marked, and very pure; second, Mr. W. Dymock, with seedling, also very good and promising; third, Mr. J. Hesford, with Talisman; fourth, Mr. R. Woolfenden, with Mrs. Jackson, and fifth with Violet Amiable; sixth and seventh, Mr. Moorhouse, with seedlings; eighth, Mr. Thurstan, with Adonis; Messrs. Kitchen and Barber being ninth and tenth with unnamed flowers. Bizarre flamed.—First, Mr. D. Barber, with Sir J. Paxton, second with the same, and fifth with Dr. Hutchens; third, Mr. Simpson, with Dr. Hutchens; fourth, Rev. F. D. Horner, with Orion; sixth, Mr. J. Boydell, with Duke of Devonshire; seventh, Mr. Woolley, with San Jo; eighth, Mr. Prescott, with Pilot; ninth, Mr. Woolfenden, with Excelsior; tenth, Mr. H. Housley, with Merit. Roses, flamed.—First, S. Barlow, Esq., with Mabel, and ninth with Lady Gordon; second, Mr. Housley, with Annie McGregor, and fourth with Mabel; third, Mr. D. Woolley, with Aglaia; fifth, Rev. F. D. Horner, with Little Rose, and tenth with Lady Sefton; sixth, Mr. T. Simpson, with Mrs. Lomax; seventh, Mr. R. Woolfenden, with Industry; eighth, Mr. Fearnley, with Mr. Talbot; and ninth, S. Barlow, Esq., with Lady Sefton. Byblœmens, flamed.—First, Rev. F. D. Horner, with Talisman; second, Mr. J. Thurstan, with Adonis; third, S. Barlow, Esq., with Lady Hardwicke, and seventh with Luttenberg; fourth, Mr. Woolley, with Bessie, and sixth with Lord Denman; eighth, Mr. Simpson, with Duchess of Sutherland; ninth, Mr. Woolfenden, with Mr. Jackson; tenth, Mr. W. Kitchen, with Seedling.

The premier feathered Tulip was a seedling bizarre shown by Mr. D. Woolley, greatly resembling John Hart. The premier flamed Tulip was Sir J. Paxton, shown by the Rev. F. D. Horner.

The beautiful self-coloured breeder Tulips were in strong force, though Mr. Barlow was unable to show them to any extent, owing to the lateness of the season. There were five stands of six dissimilar, two of each class, the Rev. F. D. Horner being first with bizarres Ariosto and Sir J. Paxton; roses, Miss B. Coutts and Thomas Parker; byblœmens, Alice Grey and Glory of Stakehill. Second, Mr. J. Wood, with bizarres William Lea and Horatio; roses, Mabel and Industry; byblœmens, Alice Grey and Boardman's No. 1, which appears to be identical with Mrs. Cooper. Third, Mr. J. Thurstan, with bizarre seedlings; roses, Annie McGregor and seedling; and byblœmen seedlings. Fourth, S. Barlow, Esq.; fifth, Mr. A. Moorhouse. There were twelve stands of three blooms, the Rev. F. D. Horner being again first with bizarre, Sir J. Paxton; rose, Thomas Parker; and byblœmen, Alice Grey. Second, Mr. R. Woolfenden, with bizarre, William Lea; rose, Prtty Jane; and byblœmen, Alice Grey. Third, S. Barlow, Esq., with bizarre, Hepworth's 27, very bright; rose, Mabel; and byblœmen, David Jackson. Fourth, Mr. J. Thurstan; fifth, Mr. Woolley; sixth, Mr. H. Housley; seventh, Mr. J. H. Wood; eighth, Mr. A. Moorhouse.

In the classes for single blooms a considerable number of flowers were staged, and the awards were as follows:—Bizarre.—First, Mr. Woolfenden with Lea's No. 2. Second, Mr. Prescott with Sulphur. Third, S. Barlow, Esq., with Excelsior. Fourth, Mr. Woolley with Seedling. Fifth, Mr. Thurstan with Seedling, and sixth with Sir J. Paxton. Seventh, Mr. Thos.

Wood with the same. Eighth, Mr. H. Housley with R. Yates. Roses:—First, Mr. J. Thurstan with Lord Derby, very fine, sixth with Seedling, and seventh with Lady C. Grosvenor. Second, Mr. Woolley with Mabel. Third, Rev. F. D. Horner with Lady C. Grosvenor. Fourth, Mr. R. Woolfenden with Industry. Fifth, Mr. Moorhouse with Miss B. Coutts. Eighth, Mr. D. Barber with Industry. Byblacemen.—First and fourth, Rev. F. D. Horner with Beauty of Litchurch; third and seventh with Talisman. Second, Mr. Woolfenden with Alice Grey. Fifth, Mr. Hesford with Seedling. Eighth, S. Barlow, Esq., with Ashmoles' 114.

The premier breeder was William Lea, shown by Mr. R. Woolfenden in excellent form. No certificates of merit were awarded upon this occasion.

READING SHOW.

JUNE 2ND.

A BRIGHT and varied display was provided in the large marquee in the Abbey Ruins at the Forbury Gardens, Reading, on Thursday last, but the competition was not very brisk, and there was an absence of large specimen plants that gave an appearance of thinness in some parts. It seems as if much of the enthusiasm which once rendered this exhibition such a good one has been lost, and whether the fault lies with the exhibitors or the management we cannot say. There is a danger, however, that unless some energetic action is taken, the Reading Show will dwindle to one of fourth-rate importance. The site for the Exhibition is charming; most convenient for both exhibitors and visitors. The neighbourhood is an excellent one; horticulture is largely patronised, and there can be no reason why the Show could not be made one of the best provincial exhibitions. Abundant examples are furnished by other societies, who, with practical secretaries and committees really interested in their work, have placed their exhibitions at the head of such events, both horticulturally and financially. We have seen many examples of success and failure in exhibitions and societies, and the latter were almost invariably the result of following up the "let alone" system until it was too late to rectify the evil by a more energetic policy.

The Orchids formed a pretty group on one of the central mounds, Mr. H. James of West Norwood winning the first prize for three plants with excellent specimens of *Odontoglossum crispum*, seven racemes; *O. Pescatorei*, eight panicles; and *Cattleya Mossiae*, eight flowers. Mr. Pound, gardener to G. May, Esq., Caversham, was second with *Dendrobium suavisimum* in a basket, and bearing fourteen racemes, very handsome *Aerides Fieldingi* on a block with four spikes, and *Odontoglossum citrosomum* with three racemes. Equal third prizes were accorded to Mr. Woolford, gardener to A. Palmer, Esq., for *Cypripedium Lawrencianum*, *Cattleya Mossiae*, and *Lælia purpurata*; and to Mr. Baskett, gardener to W. J. Palmer, Esq., for *Cypripedium barbatum*, *Dendrobium thysiflorum*, and *Odontoglossum Roezli*, all healthy well flowered plants. An extra prize was adjudged to Mr. Lawrence, gardener to Mrs. Owen, Knox, Caversham, for *Lælia purpurata*, *L. majalis*, with four of its beautiful flowers, and *Cattleya Mendeli*. The competition and quality of exhibits were better in this class than in any other in the Show. Mr. Parham, gardener to J. J. Simonds, Esq., Caversham, had the best single specimen Orchid, an extremely fine example of *Dendrobium densiflorum*, 3 to 4 feet in diameter, with twenty-six racemes of golden flowers. Mr. Lawrence was second with *Odontoglossum vexillarium*, and Mr. James third with *Cypripedium barbatum majus*. This Society might easily render the Orchids a still more prominent feature in their Show, as it is evident there are several excellent growers in the district.

There was nothing of a special character in the stove and greenhouse plants. Mr. James secured the chief honours with capital specimens, to which we have repeatedly referred this season; but they were notable for their very satisfactory freshness on this occasion. In the amateurs' class for six stove and greenhouse plants Mr. Parham was the most successful, having large healthy plants of *Rhyncospermum jasminoides*, *Lantana Le Grand*, *Vincas rosea* and *alba*, *Anturium Schertzerianum*, and a capital *Vanda teres* with twenty fine flowers. The same exhibitor was awarded chief honours for six Ferns, vigorous specimens of *Cibotium Sebiedeii*, *Alsophila australis*, *Adiantum Williamsi*, *Lomaria cycadæfolia*, *Davallia Mooreana*, and *Gymnogramma chrysophylla*. Mr. Armitage, gardener to W. Clark, Esq., and Mr. Dockerill, gardener to G. W. Palmer, Esq., second and third, also with good plants. Mr. Dockerill was first for fifteen Ferns and *Selaginellas*, showing small but fresh healthy plants. He also had the best six *Selaginellas*, being followed in the former class by Mr. Parham, who was, however, first with best four foliage plants, showing examples of *Phoenix dactylifera*, *Pandanus Veitchii*, *Livistona borbonica*, and *Maranta zebrina*.

Mr. Lockie, gardener to the Hon. G. Fitzgerald, Windsor, was the premier exhibitor of four Azaleas, medium size plants of *Roi d'Hollande*, *Reine des Pays Bas*, *Extranele*, and *Duchesse Adelaide de Nassau*; Mr. Armitage following with freely flowered small plants. Mr. Baskett was first for the Society's prize with four Roses in pots, strong healthy examples of *Baroness Rothschild*, *Paul Neyron*, *La France*, and *Duke of Edinburgh*. He was also first for Messrs. Wood & Son's prize for a specimen Rose, showing *Hippolyte Jamain*, and he had the finest single specimen stove or greenhouse plant, a large globular *Clerodendron Balfourianum*, profusely flowered. Mr. Armitage was second with *Plumbago capensis*, and Mr. Hatch, gardener to S. B. Stevens, Esq., third with *Hydrangea hortensis*, 4 feet in diameter, and loaded with large heads of flowers.

In the class for nine show Pelargoniums, Mr. Ashby, gardener to W. Fanning, Esq., was first with fine well-flowered Plants, comprising *Rob Roy*, *Duchess of Edinburgh*, *Triomphe de St. Mandé*, *Spotted Gem*,

Crimson King, *Claribel* (very good), *Prince Leopold*, and *Bridal Bouquet*. Mr. Lockie had the best six *Calecolarias*, followed by Messrs. Baskett and Dockerill, the two latter, with Mr. House, gardener to J. O. Taylor, Esq., having the best *Gloxinias*.

The groups of plants occupied the greater portion of the space in the marquee. In the class for a group effectively arranged in a space 12 feet by 10 feet Mr. H. James was easily first with a most tasteful contribution, the base formed of *Adiantums* and other dwarf Ferns, with numbers of brightly flowered Orchids and taller plants of *Cocos*, *Dracenas*, and a central plant at the back of *Rhapis*. Mr. Woodford was second for a varied and bright group of *Rhododendrons*, *Calecolarias*, *Azaleas*, *Gloxinias*, Orchids, &c., with a due proportion of Ferns. Mr. Parham third with a showy group, but rather too formal and elaborate. Extra prizes were accorded to Mr. Sumner, gardener to T. H. Millard, Esq., and to Mr. G. Phippen for good groups. Mr. Ashby was first with a capital group of *Rhododendrons*. Mr. Pound was the premier exhibitor of a group (6 feet by 4 feet), followed by Mr. Balchin. For small groups of miscellaneous plants the following prizes were awarded:—First, Mr. Hatch; equal second, Messrs. Phippen and Armitage; third, Mr. Woolford; fourth, Mr. Pound; and equal fifth, Messrs. Balchin and House. These small collections might be rendered a more important feature in the Show, and would deserve a more prominent position. Mr. C. Turner, Slough, contributed a charming group of show and decorative Pelargoniums, healthy vigorous plants profusely flowered, very notable being *Edward Perkins*, *Formosum*, *Lady Isabel*, *Venus de Milo*, *Magnet*, *Illuminator*, *Marguerite*, *Norma*, *Madame Albert Descaris*, and *Gold Mine*. Special mention must also be made of a large non-competing group from Mr. W. Lee, The Wilderness Gardens, which formed a fine bank at the end of the marquee, and comprised a number of well grown *Ericas*, *Azaleas*, *Anthuriums*, Orchids, &c.

The prizes for table plants brought several exhibitors, Mr. Waite, gardener to the Hon. W. P. Talbot, Esher, winning first honours with neat plants of *Croton Sinitzianus*, *Cocos Weddelliana*, *Dracena terminalis*, *Dracena Guilfoylei*, and *Pandanus Veitchii*. Mr. Lockie, who was second, also had good plants and varieties, *Aralia Veitchii*, *Crotons angustifolius* and *Lord Derby*, *Cyperus variegatus*, *Dracena superba*, and *Asparagus plumosus*; an extra prize was accorded to Mr. Dockerill.

Cut flowers were not very numerous; Pansies were, however, well shown by Mr. Laurence, gardener to Mrs. Owen Knox, who gained the first prizes for show and fancy varieties, followed by Mr. Shrimpton. Mr. Goodman had the best twelve bunches of stove and greenhouse cut flowers, Mr. James being second; and Mr. Phippen was first with twelve bunches of hardy flowers, Mr. Sumner taking the second place. The Misses Phillips and Barrett were the principal exhibitors in the classes for vases of flowers. Mr. Phippen was first for a tasteful bridal bouquet, also showing a fine floral cross and a large epergne of flowers similar to that honoured at the Crystal Palace recently. For buttonhole bouquets Mr. Pound was first, closely followed by Mr. Phippen and Elliott.

Fruit was necessarily somewhat scarce at such an early period in so late a season; but the black Grapes were good, especially the premier pair of bunches from Mr. Turton, gardener to J. Hargreaves, Esq., Maiden Erlegh, who had compact well-coloured branches of *Black Hamburg*. Mr. Ashley was second with good bunches, not quite so black; and Mr. Cook, gardener to J. Taylor, Esq., third, there being five exhibitors. The white Grapes were green. Mr. Asbley was first with Foster's Seedling, Messrs Cook and Baskett being second and third with the same variety. For a dish of thirty-six Strawberries there were six entries, Mr. Goodman being first with *La Grosse Sucrée*, large fruits, rich in colour. Mr. Waite was second with *Sir Joseph Paxton*, and Mr. Lockie third with Keen's Seedling, *Vicomtesse Hericart de Thury* being shown by two other exhibitors and *Sir Charles Napier* by one. The best six Peaches were from Mr. Furton, *Early Ascot* of good size and excellent colour, Mr. Cook being second with *Royal George*.

Vegetables were well represented, particularly in the class for Messrs. Sutton & Sons' prizes, which brought several good competitors. Mr. Lockie was adjudged the first place with clean excellent samples of *Tomato Hathaway's Excelsior*, *Peas American Wonder* and *Sutton's Ringleader*, *Potatoes Sutton's Ringleader* and *Ashleaf*, *Beans Ne Plus Ultra*, *Cucumber Purley Park Hero*, and *Vegetable Marrow Moore's Vegetable Cream*. Mr. Goodman was a close second with similar varieties, except *Tomato Reading Perfection*, *Sutton's Favourite Cauliflower*, *Sutton's Telegraph Cucumber*, and *Asparagus*. Mr. Brooker, gardener to C. Littledale, Esq., was third. With miscellaneous collections of vegetables Messrs. Lockie, Goodman, and Brooker were the prize-takers, *Rhubarb*, *Asparagus*, *Lettuces*, *Cauliflowers*, *Beans*, *Potatoes*, and *Mushrooms* also being well shown in their respective classes.

First-class certificates were awarded to Messrs. J. Carter & Co. for their fine Queen's Prize Jubilee Mimulus, and to Messrs. Oaksbott and Millard for a fine solid compact Cabbage named *Reading Defiance*.

NICOTYL VAPOURISER.

MR. BENJAMIN FIELD, 75A, Queen Victoria Street, E.C., sends us a sample of a new fumigator entitled *Field & Hearson's Nicotyl Vapouriser* (fig. 80), which is constructed upon the principle of converting a liquid strongly impregnated with nicotine into a vapour, which is diffused through the house, and is said to destroy aphides and other insects very readily. It is thus described—"The apparatus consists of an annular vertical chamber, into which is dropped a conical cylinder, open at the top and bottom. The introduction of this open-ended cylinder divides

the interior of the chamber into two annular portions: a smaller one next to the centre flue, which, for the purpose of this description, we will call the super-heater, and an outer larger one, which we will call the boiler. Below the vertical opening in the centre of the chamber, which we will hereafter designate the lamp chimney, we arrange a lamp burner and a reservoir for containing the paraffin oil, by the means of which the apparatus is heated. The boiler being filled to a certain

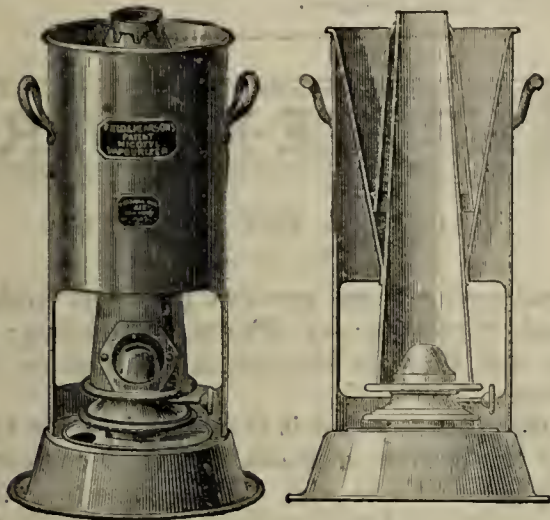


Fig. 80.—Nicotyl Vapouriser.

height with the nicotyl to be vaporised, and a certain measured quantity of oil poured into the reservoir, the lamp is lighted and allowed to burn until the whole of the oil is consumed." It is well constructed and worthy of a trial.



HARDY FRUIT GARDEN.

GRAPE VINES.—These are very late in starting this season, and unless we have a hot summer it is doubtful if much of the fruit will ripen sufficiently for dessert purposes. Very excellent wine, however, can be made of open-air Grapes, even if they are not fully ripe, and in any case the Vines should receive attention both now and later on. Directly it is seen which are showing good bunches; all the best placed shoots should be reserved and the remainder removed. These laterals must not be crowded in any way, too much foliage preventing the ripening of both fruit and wood. In most cases they may be laid in both right and left of the rods, being either tied to a trellis or nailed to the wall, but this ought not to be attempted till the laterals will bear a good twist without being drawn out of their sockets. All we shall do to ours before the bunches are set with berries will be to stop the laterals two joints beyond the bunches, and when they are laid in the sub-laterals are freely thinned and what few retained stopped to the first joint. The bunches where extra plentiful are also thinned out early. Where leading shoots are required they should be laid in early or before they get unmanageable, and be stopped when about 6 feet long. Young well-ripened canes being the most fruitful, it is advisable to lay in several along the old rods, these being stopped at any length, or from 2 feet to 6 feet, and may either be fruited instead of the spurs, or, where possible, the old rods may be cut clean away. We have our best bunches from young canes trained along the top of a south wall above Peach and other fruit trees, the Vines being planted among the latter; and as they are not allowed to heavily shade the fruit trees no harm is done them. One, or at the most two growths, may be allowed to extend a few feet from young or newly planted Vines, and these are best taken up from near the ground, unless it happens that the cane planted is extra strong, in which case the leading growths may be started 3 feet from the ground, and those laterals beyond being rubbed out below the pinched-back to the fourth joint. When two shoots are wanted to extend they ought to be laid in well clear of each other.

DISBUDDING AND STOPPING WALL TREES.—Plums, Cherries, Peaches, Apricots, and Pears are all growing strongly, and the shoots on the younger trees especially need to be freely thinned, or otherwise thickets of weakly growth will soon result. After the clean removal of all badly placed shoots, or those with a tendency to interlace towards the wall, it may yet be necessary to thin out the rest, a moderately thinly furnished branch being preferable to spurs thickly disposed. The young shoots on the branches that are to lay the foundation of

clusters of fruiting spurs ought, in the case of Plums, Cherries, and Apricots to be about 3 inches apart, while Pears may well have their spurs from 4 inches to 5 inches apart. Wherever there is space to be filled either on old or young trees, a well placed shoot on the upper side of the branch may be selected and allowed to grow unrestricted for some time longer, taking care, however, to secure them in position before the wood has become set. Such young growth will frequently put new life into unprofitable old trees. All the rest of the reserved shoots should be stopped at once, or while it can be done with the finger and thumb, this being a far better plan than allowing the trees to expend much of their strength in the formation of a quantity of growth only to be cut away with a knife. Early stopping makes it better for the fruit, as well as any young branches that are laid in, and is also the quickest way of bringing a tree into full bearing. The shoots on Plums, Cherries, and Apricots may be left from 2 inches to 3 inches in length, and the Pears rather more. Peaches and Morello Cherries are not usually grown on the spur system, as these bear best on well ripened shoots formed the season previous. Only sufficient of these then ought to be reserved, and eventually laid in to take the place of the old fruiting wood to be cut away. Thin out the shoots, and in the case of Peaches and Nectarines, as pointed out on page 404, take care have a few leaves about the fruit.

INSECTS ON PEACH TREES.—Peaches and Nectarines up to the present time are singularly free from insect pests, notably green and black fly. It may be the severe winter we have just passed through has destroyed those that would otherwise, ere this, have been the parents of a numerous progeny. As a rule they hibernate in the ground only too safely, and the trees may yet be pestered with them. A close watch ought to be kept for them, and a remedy applied on their first appearance, or otherwise it is almost impossible to exterminate, the black fly especially. There are various remedies available, all doubtless more or less effective, but after trying many find none to excel tobacco powder. If the infested shoots are cleared of curled leaves and well dusted over with this and left for about two days the engine or syringe will free the tree of both powder and fly. Red spider has shown itself, especially on Apricot and Peach trees under a glass coping. To prevent a rapid spread of this most injurious pest plenty of water must be forcibly applied to the whole of the foliage, a garden engine being the best implement for the purpose. If this is persevered in, especially on the evenings of sunny days, red spider will make little progress, and the syringings will otherwise benefit the trees.

FRUIT FORCING.

PINES.—The suckers potted last March should, as regards the strongest, be in their largest pots. If they be not yet potted, no farther delay must be tolerated, as to retain them longer in small pots is debilitating and detrimental to their aftergrowth. Recently potted plants must have a bottom heat of 85° to 90°, and be thoroughly watered after potting, and no more be given until the soil becomes dry, as it is necessary to exercise more care than usual at this stage, the state of the individual plants being ascertained before its application.

Young stock will be making rapid progress, and must be regularly attended to in every particular, allowing such plants sufficient space for development, as nothing is so inimical to sturdy plants as crowding them together in their early stages. Ventilate early in the day at 75° to 80° to render the foliage dry before it is affected by the sun. Discontinue shading successional plants, but for fruiters with the crowns in close proximity to the glass a slight shade from powerful sun will be beneficial.

The strongest plants that were shifted into fruiting pots last September will be showing signs of fruiting, or if such be not the case, means must be applied to effect it with a view to a supply of early winter fruits. The plants should be brought together and subjected to a comparative rest for the next five or six weeks, lowering the heat at the roots to 75°, maintaining a free circulation of air about the plants whenever the weather is favourable, ventilating at 75°, and allowing the heat to fall to that degree before closing the house, only employing artificial heat to prevent the temperature falling below 60° at night, not withholding water entirely, but when a plant becomes dry supply it liberally. The smaller plants that were not placed into the fruiting pots last autumn, but were wintered in smaller pots and shifted this spring, should be kept growing until the pots are well filled with roots, at which time, if thought necessary, they may be subjected to similar treatment as advised for the larger ones, and those plants will then give a successional supply of fruit.

PEACHES AND NECTARINES.—*Early-forced Trees.*—In the earliest houses the fruit is all gathered from the very early varieties, such as Alexander, Waterloo, Early Beatrice, Early Louise, and Early Rivers. The wood on which the fruit has been borne, it not being extensions, should be cut out, and this will admit more light and air to the shoots which are to afford fruit next year. The trees should have a thorough cleansing with water from the garden engine, or if insects have obtained a footing they must be destroyed by some approved insecticide. The borders also must be kept in a thoroughly moist condition, and the surface be mulched with short manure. Daily syringing will be necessary to keep the foliage clean. Admit air freely, and keep the house as cool as possible so as to maintain the foliage in good condition as long as practicable. The roof lights should not be removed for some time yet, but it should be attended to at no distant period with a view to prevent over-development of the buds and early casting of the foliage, or the trees will start the bloom buds when they should be going to rest.

Second Early House.—Hale's Early makes a capital succession to the early varieties, and is a much better quality fruit, being followed by Early York, which precedes Royal George by a fortnight. The last is still one of the best forcing Peaches, especially in that form known as Stirling Castle. Grosse Mignonne is unsurpassed as one of the old Peaches, but Dr. Hogg precedes it, the blossom setting well, and the fruit is large and beautiful. Crimson Galande is also first-rate. Of Nectarines, Hunt's Tawny when well grown is superb in colour and quality; Lord Napier is more tempting in size, and leads up to those excellent old sorts, Elrue and Violette Hâtive. Admit plenty of air to the ripening fruit in the daytime, and at night also if a prolonged succession of fruit is required. When the fruit is all removed resume syringing to free the foliage of dust and red spider. The borders must be maintained in a thoroughly moist state, as it is important the foliage be kept healthy as long as possible. After fruiting cut away the wood which carried the fruit to the shoot at the base for next year's fruiting, excepting those needful for the extension of the trees; and if the trees are too full of wood thin well so as to admit light and air to the shoots, and thereby ensure the thorough ripening of the wood. No artificial heat will now be necessary except in very dull weather, when it will be necessary, especially where the fruit is ripening, to permit a free circulation of air. Remove any leaves that shade the fruit too much, so that it may colour perfectly at the ripening period.

Late Houses.—Thinning the fruit will now be completed, also dis-budding, tying in young shoots having been attended to. Early and free ventilation on all favourable occasions will be the order of the day, along with early closing and syringing morning and afternoon. If there be any aphides destroy them by repeated moderate fumigation, having the foliage dry, and for red spider syringing ought to subdue it, or apply an insecticide. Mildew sometimes makes its appearance, and should be overcome by the prompt use of sulphur, rubbing it on the white specks if any appear in the fruit. Sulphide of potassium is, however, much more potent than sulphur, and more certain of application.

PLANT HOUSES.

Begonias.—Such varieties as *semperflorens*, *rosea*, and *alba* should now be rooted in quantity for yielding flowers for cutting and decoration next winter. They strike freely in a warm moist shaded atmosphere so long as they are not subjected to the confinement of the propagating frame. Cuttings of *Begonia nitida* and its rose-coloured form should also be inserted in quantity, and the same may be said of *Ingrami*. It is a great mistake to root any of these varieties too early for winter flowering, for they become large and tall, instead of being in autumn dwarf and compact. Until they are well established in small pots they may be grown on in heat, but from the time they are placed in their largest pots they need only cool frame treatment. *B. Knowsleyana* must be well pinched in its early stages to induce it to branch freely. If this is not attended to this variety soon becomes tall. Useful plants from cuttings rooted now can be had by autumn, but we prefer to root cuttings of this earlier than most others, and bring them forward gently from the first. *B. Carrierei* is one of the most useful that can be grown, for in heat it will flower the whole winter, and after pinching or cutting back, can be had in flowering condition more quickly than other varieties. A large stock of plants may be raised from cuttings now, but care must be taken to insure each cutting having a growth bud at the base, or they will not branch. If the flower stems only are inserted they will continue to extend in length, but no pinching will induce them to break from the base.

French and Fancy Pelargoniums.—The main secret in the cultivation of these useful decorative plants is to start with healthy, vigorous cuttings—that is, growing, not flowering shoots. It is a great mistake to delay the propagation of next year's stock of plants until those from which the stock has to be obtained have become exhausted by flowering. In this stage nothing remains for cuttings but flower stems, which have become firm and take a long time to root; in fact, plants raised by such methods are always weak. For flowering early next spring cuttings of growing shoots should be inserted singly in small pots without delay. They will root freely and quickly on a shelf in a temperature of 60°. Directly they are rooted remove the point of the plant and gradually harden them to cool airy treatment. From the first the aim must be a firm, stout, compact growth, and then, if wintered well, large wonderful heads of bloom will be the result. Successional cuttings must be inserted from time to time as good ones can be obtained. Feed liberally those that have first commenced to show signs of coming into flower. If kept in a cool light airy structure they will attain immense strength, and will be found invaluable after all the earlier batches are over.

Zonal Varieties.—The whole stock intended for winter flowering should be placed at once into their largest pots, 5 or 6-inch being suitable. Frame room will now be plentiful, and as they are potted these positions may be given them. Press the soil firmly into the pots, so that a short-jointed growth only can be made. Keep the frames close for ten days or a fortnight, and then gradually harden the plants until they can be stood on beds of ashes in a sunny position outside. If it is found that sufficient stock has not been raised root a number of cuttings at once singly in 3-inch pots; these will make useful plants, but must be confined to small pots. Feed liberally all that are in flower or approaching that stage if their pots are well filled with roots.

Isolepis gracilis.—Few plants are more elegant or useful for furnishing purposes, and to have a good stock in capital condition to last through the autumn and winter it should be divided at once. Nothing is gained by placing them in heated structures afterwards. If given a moist

shaded atmosphere they soon become established and grow rapidly. The pots need not be filled with soil but ample room left for liberal supplies of water and top-dressing in autumn. One-third of the compost should consist of leaf mould.

Calceolarias.—A little seed should be sown on the surface of fine soil in a pan. Do not cover the seed, but water with a fine-rose can, and stand the pan in a cold frame. The pan may be covered with a square of glass and damp moss laid on the surface until germination takes place. If well watered at first, and the moss and pan syringed once or twice daily, and the frame shaded, the soil will not need watering before the young plants appear.

THE BEE-KEEPER.

PRACTICAL BEE-KEEPING.

No. 12.

IN bee-keeping there are two principal systems of management, these are:—1, The non-swarmling; 2, The swarming; and there is also—3, A modification of both these systems.

It is difficult to say that it is most profitable to follow any one of these three methods, but it is comparatively easy to lay before those who wish to come to a decision the points in favour of each method, and so enable them to determine for themselves how it will be most profitable for them, taking into consideration their individual circumstances, to manage their apiaries.

First, When bees are placed within an easy distance of orchards, of Sycamores, of Clover, and of Limes, the non-swarmling system is the one calculated to give the greatest results with the least expenditure of money and labour.

Second, If in addition to the above sources of honey Heather is also in close proximity, or the bee-keeper is able to convey his stocks to the moors, then the latter system will be the most profitable.

Third, If there is little fruit and Sycamore honey to be gathered, and Clover is alone relied on for the crop of the year, the third system should be followed. Now in considering the first of these positions it may be pointed out that when there is a supply of fruit and Sycamore honey extending from the last week in April until the first week in June when Clover may be expected to bloom, the bees can by judicious management be employed in filling the sections with comb, or if liquid honey is desired in drawing out the combs in the super bodies until the time arrives when the Clover honey can be gathered in quantity. Then every cell will soon be filled and sealed, and a greater quantity of the finest honey will be secured than could have been obtained if the bees had been allowed to swarm, and there were consequently no combs drawn out ready to receive the honey, which will continue for perhaps ten days to be brought to the hive. True, there will be both a swarm and the old stock busily employed in working supers, but unless the season is an unusually good one I hardly think that the united efforts of the two will equal the results obtained from one stock retaining all its surplus population at home. If swarming is to be allowed at all it is a *sine qua non* that the swarm must issue or be taken from the stock at least twenty-one days before the expected honey flow, otherwise those stocks which have not been allowed to throw off their surplus workers will give much better results than those stocks which have been so weakened.

With regard to the second point the absence or presence of Heather makes the essential difference. This must evidently be so, because Heather honey is more valuable than even the finest Clover honey, so that part

of the latter may with profit be sacrificed if necessary to the former. Every stock when taken to the Heather, or when the Heather season approaches, must be very strong in bees. Now if stocks are ready for swarming during the first twenty days of May, one swarm may be taken from each hive, the casts being returned to the stocks from which they have issued. There will then be two colonies of bees which may be able to take advantage of all the flow of Clover honey, certainly of part, and which will be in grand condition when the latter yields its nectar.

Thirdly, If there is but little fruit and Syeamore honey, and Clover is the only plant yielding any quantity of honey, the modified system must be adopted, because by judicious feeding an increase may be obtained, and the stock be in good condition by the time the Clover is in bloom. Half a swarm may with safety be taken in the manner pointed out last year; the swarm will thus be very strong without any stock being injuriously weakened. In no case do I think it wise to take more than one swarm from each stock if honey is desired in quantity. Those who can sell stocks and swarms will of course adopt a system of management to suit their requirements, but only a small minority of bee-keepers are able to sell swarms and stocks with certainty. I am aware that there are other points to be considered before deciding to adopt one of these three methods, but they are only offshoots as it were of the great principles which I have endeavoured to make sufficiently clear to enable all to grasp what are the main considerations which should carry weight with them when a bee-keeper is deciding to adopt the swarming, non-swarming, or modified swarming system of management. In subsequent articles dealing severally with these systems, and giving detailed instructions of practical management, every point in favour of the one or the other, or telling against any of them, shall be brought prominently forward and fully discussed. At present it is sufficient to have shown that in one district a system of management may be pursued with profit which in another locality would be attended by certain failure. With those who deery the value of orchard honey because of the uncertainty whether the bees will have a chance of gathering it I have no sympathy, because even though possibly in no year can the weather in May be expected to allow of unremitting work, yet the season is rare when bees which are in good condition have not the opportunity of collecting sufficient honey to keep them increasing in strength, and also to enable them to draw out foundation and fill the sections with empty comb.

Those who have every stock strong in numbers and a good supply of empty comb for each hive, will find that they have gained a great advantage over those whose bees have to build the comb when they ought to be collecting and storing honey. The season does not wait, the honey flow passes by, and the cry is heard "a bad season" arising from one apiary, while in the next, not perhaps more than a hundred yards distant, the bee-keeper is congratulating himself upon the "grand crop" he has secured—mainly, it should be remembered, owing to his own practical foreseeing management.—FELIX.

NOTES ON BEES.

DISEASE OF BEES.

It appears that bees are not exempt from the disease which usually attacks them in some quarters at this season. A correspondent writes saying, "The annual disease which our bees are subject to at this season, beginning generally about the 20th May and continues about eight or ten days, is decimating our hives greatly, the

bees dying by thousands." A subsequent letter in answer to me with bees accompanying it, which I have forwarded to Dr. Walker, says, "The bees lose all power of their wings as they roam about with them extended, as well as is their hinder part, and have a bad smell." The Rhododendrons are plentiful, but are not in bloom, nor will they be until the middle of June, and as for honey there has not been a single cell gathered yet." Query—What can be the cause of the death of bees in a highland district free from all pollution, unlike Greenock? I am inclined to think pollen has something to do with it; but I trust Dr. G. Walker will be able to solve the problem.

In another district of the western highlands two weeks ago the Rhododendrons were in full bloom and so plentiful that a bee-keeper is hopeful of getting supers filled from them, but does not speak of bees dying or suffering from any disease. Nor am I sure whether the disease which affects the bees at Greenock (which I have witnessed) is the same as those sent to Dr. Walker, but I have asked the Greenock bee-keeper to send on some diseased bees to Dr. Walker, and I will do my utmost to collect all the evidence possible to solve the mystery.

CASES AND COVERINGS FOR HIVES.

I omitted to state in my last communication on cases that perhaps the most effectual weather joint (certainly the most simple) for an amateur to make is to sink strips of wood flush into the frames, from 2 to 3 inches broad by a quarter of an inch thick, right in the centre where the edges of the lining proper comes, so that they cover it an inch deep. Such a joint is not influenced in any way by the weather, whether it shrinks or expands, and if the space between the edges of the lining is pretty wide will air over the top of the hive effectually. Economy in hives will be more studied than it has been in the past, as well as adaptability and suitability. Single-cased hives are doubtless the most suitable for bee-keeping generally, as they also are the most beneficial and comfortable towards the health of the bees, and in point of cheapness cannot be surpassed. The only outlay necessary for their protection is a sheet of galvanised iron 3 feet by 2 feet 6 inches, having a hole pierced about 6 inches from each end the 2 feet 6-inch way, through which a piece of fencing wire passes after it has been bent at each end, so that the end of the wire about an inch long is bent about an inch wide and runs parallel to the long portion of the wire, which should be about 23 inches. The iron is sprung into these inturnd ends and forms a circle and the best roof that can be procured. If the bees require to be removed to the Heather, the wires are taken out and the iron springs back to its original flatness, making it handy for packing underneath the hives on whatever vehicle they are transmitted, and the hooked wires can be replaced in a few seconds, which keep the iron firmly on the hive, and if desired a cord fastened to stand and wire, no wind will throw it off.—A LANARKSHIRE BEE-KEEPER.

ARTIFICIAL SWARM.

Do you think I could make an artificial swarm of bees in the following manner with any chance of success? I have two stocks of bees, one in a straw skep, and one in a bar frame. On a fine day when the bees are flying well I thought of taking a comb of brood and eggs from the frame hive, and putting it in a new hive together with some spare comb I have on hand. I should then remove the straw hive to a new stand and put the new hive in its place, the flying bees taking possession and raising a queen from the eggs or brood taken from the other stock. Do you think the middle of June would be a good time to try it?—A. P.

[Certainly not, swarms without queens are useless. You may take a comb of brood from the stock and the queen, placing this comb and queen in a new hive, and placing the new hive 3 feet on one side of the old stand, and the stock 3 feet on the other side. If the swarm or stock seems to be too weak in bees, either may be strengthened by being brought nearer to the old stand. The same with the skep, but you will have to drive the bees to get the queen. You may, if your stocks are not very strong, take half a swarm from each, but a good stock is now ready to yield a full swarm, and a comparatively weak one now will be able to afford a swarm on 15th June, the height of the honey season.—FELIX.]

HIVING BEES.

PERHAPS you will kindly oblige me with instruction as to how to hive a flight of bees in an ordinary bar-framed hive. Both I and the man are ignorant of the manner in which it is done. I shall be glad to know, although the bees are not gone yet from the old straw skep.—S. A. C.

[Hive your swarm in an ordinary skep, wedge up the front of the bar-frame hive at least an inch above the floorboard, fasten a sheet to the floorboard, and let it slope gradually to the ground. As soon as the swarm has settled in the skep carry it to the frame hive, and with a sudden jerk throw the swarm from the skep on to the sheet. The bees

will probably at once run into the hive; if they delay doing so take up a handful and place them close to the entrance of the hive, when they will at once run in, and the whole swarm will very speedily follow their leaders.—FELIX.]



TO CORRESPONDENTS

* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

LATE INQUIRIES.—It is necessary to again remind correspondents that letters arriving on WEDNESDAY MORNING cannot be answered in the "next issue," which is then far advanced for press.

Lettuces in Winter (A. B. C.).—Your letter cannot be so fully answered in the present issue as is desirable, and you will gain by waiting another week.

Scillas and Narcissus (W. T.).—The flowers you sent are interesting as showing the gradual advance from a single to a double form. The *Hyacinthus non-scriptus* of old writers is now styled *Scilla utans*.

Chemical Manure (H. E.).—The sample you have sent appears to be what is termed by manufacturers a blood manure, and will be good for vegetables applied as a top-dressing in showery weather at the rate of about 2 ozs. to each square yard of land.

Pelargonium and Chrysanthemum (H. C., Market Drayton).—The striped *Pelargonium* is well worth preservation, though such forms are not uncommon; it is, however, more curious than beautiful. The *Chrysanthemum*, which is apparently *George Glenny*, is a very neat bloom for this time of year. It was probably raised from a stem cutting.

Asparagus (H. Palmer).—The sample heads you have sent are very fine indeed, and the gardener who suggested they would not be equal to smaller heads in quality we suspect was mistaken. We cooked them with some smaller, but preferred yours for quality as well as size. They were quite tender to a length of 4 inches or more. We shall be glad to receive the account of your mode of culture obligingly offered.

Seedling Crassulas (J. L.).—The specimens you sent are very interesting, and well worthy of careful preservation and increase. Both the white and the rose-tinted forms are pretty, and would be useful for decorative purposes as plants, or for cutting. By all means grow them separately as proposed, and develop their characters as fully as possible. If a cross was effected between the species named they should constitute a charming group of plants; it is, however, sometimes difficult to determine such matters in the early stages.

Strange Gloxinia Flowers (T. A. P.).—The flowers are strangely malformed, apparently by the production of additional lobes from the base of the corolla, and with what corresponds to the inner surface of the corolla in colouring and marking turned outwards. Such freaks occasionally occur, but they do not add to the beauty of the plants, and if it were possible to render a formation of this kind permanent it is certainly not desirable. It probably indicates a tendency to a hose-in-hose flower.

Mushrooms (Ivanhoe).—The specimen you have sent is not the true Mushroom, and is imperfect of its kind. It bears some resemblance to *Agaricus pratensis*, which is coarse and strong, but we are not sure it is that variety. We should not cook such productions. Are you sure the manure of which the bed is composed is sweet? The specimen appears as if the gills were injured by noxious exhalations. The pileus or skin of the true Mushroom is connected with the stem in a young state, the veil breaking as the dome expands, leaving a ring more or less broken on the stem. You did not send the entire stem for examination.

Clay's Fertiliser for Vine Border (Storanthum).—It is excellent for every description of crop, and for Vines is best applied as a surface dressing about three times during the season of growth—i.e., when the Vines are swelling their buds, when the Grapes have been thinned, and again as soon as the fruit changes colour. If given prior to a good watering, if such be necessary, its fertilising properties will be washed into the soil; but if not watered in scratch over the surface with a fork or a rough rake, so as to mix it with the soil immediately after its application. Two ounces per square yard is a proper quantity. Allow the Buckland Sweetwater to make more growth, and do not prune so close in winter.

Dissolving Bones (J. H.).—The following has been found a convenient method of dissolving bones for use in gardens:—Take a large watertight hogshead, and cover the bottom with about 6 inches deep of dry soil; on this put a layer of bones of the same depth, and cover them with wood ashes; on these another layer of bones, then ashes, and so on till the hogs-

head is full. Leave it exposed to the rains all summer and winter until spring. Then on removing the contents of the hogshead the bones will crumble to powder under a slight pressure, and form one of the most valuable manures ready for immediate use. You will also find some particulars on the subject in an article on phosphates as manures that will shortly be published.

Transplanting Hollies (A. G. P.).—We have transplanted Hollies successfully at this period of the year, and seen failures follow the removal of these shrubs. Much depends on their size, condition of the roots, management, and weather. You say not a word about the size of your shrubs, or whether they have been long in their present positions. If very large, and have been long undisturbed, you had better perhaps prepare them for removal by digging a trench round and filling it with soil consisting largely of leaf mould for inciting the production of a mass of fibrous roots. If you like to send us particulars of the nature above indicated your letter shall have our attention. In the absence of necessary information we cannot give a categorical reply.

Singular Insects (Buckland).—These objects offer a curious illustration of what is called insect-mimicry. They are the caterpillars of a species of moth called the Feathered Thorn, or *Himera pennaria* in science. They belong to the group of Geometers, so styled from their mode of progression, as they appear to measure whatever they may crawl upon by the strides they make, the centre of the body being without legs. The food of this species is several shrubs and trees, but it is not abundant enough to be injurious. When not eating they poise themselves in the attitude noticed, the head being stretched out and the front legs pressed together, when they closely resemble little twigs. The moth comes out in autumn. It is a species fond of flying into or around lights.

Menyanthes trifoliata (W. Gilbert).—The above is the name of your plant, popularly known as the Buck Bean or Bean Trefoil, described in Hogg's "Vegetable Kingdom" as one of the most lovely of our native plants. It grows in marshy places, and is very plentiful in Britain, producing an abundance of its white bearded rose coloured blossoms in May and June. The whole plant is intensely bitter and somewhat nauseous, and its bitter properties depend on a principle called menyanthin, which has a pure bitter taste, is soluble in alcohol and water, but not in pure ether, and is chemically neutral. Besides its bitter properties, which are equal to those of Gentian, it possesses also cathartic properties, and in large doses acts as an emetic. It is a cheap and very valuable medicine, and ought to be more generally used. In a scarcity of Hops this plant is used in the north of Europe to give a bitter to the beer, 2 ozs. supplying the place of 1 lb. of Hops. Some people smoke the leaves. *Villarsia (Limnanthemum) uymphaeoides*, also a native of this country, has the same properties.

Raspberries not Succeeding (F. J.).—The fault is not in the position, for nothing is more sun-loving than Raspberries when well supported at the roots. Abundant crops are produced in open fields in sunny Kent. We should attribute the non-success to poverty or dryness of soil. Try this plan:—Encourage only three to six canes from each stool, which should not be nearer than 3 feet in the rows, and are better 4 feet 6 inches, pulling up all others as they appear. Mulch the surface for at least 2 feet from the stools all round with about half-decayed manure so soon as the Raspberries come into flower, and it is better if the whole surface of the ground be covered. During dry weather feed with the slops of the house—i.e., cesspool, and we have no doubt of your getting strong canes and excellent crops. It will be necessary to observe the precaution not to apply the liquid too strong. The shade is quite unnecessary. Not a few Raspberry plantations are weakened if not spoiled by having the canes their full length when planted, and allowing them to bear the first year, instead of cutting them down to within a foot of the ground, as has been systematically advised in this Journal.

Alexander Peach (H. P. T. D.).—The fruit you have sent is a pale specimen of the variety named, and which is described as follows in the last edition of the "Fruit Manual":—"Fruit about medium size, round, with a well-marked suture, which terminates at the apex in a deep depression, in which there is a small point. Skin completely covered with bright red, approaching to scarlet where it is exposed to the sun, and this is coloured with broken streaks and patches of dark crimson; on the shaded side it is yellow slightly stained with crimson. Stalk inserted in a deep and wide cavity. Flesh pale yellowish white, without any stain of red even round the stone, to which it adheres firmly; remarkably delicate and very juicy, with a fine briskly vinous flavour. Flowers large. Leaves with round glands, which have sometimes a tendency to be kidney shaped. A very early Peach, which ripens in an unheated orchard house from the 12th to the 20th of July. Its only fault is being a clingstone, for its flesh is so tender it quite melts before it can be separated from the stone. It was introduced from America by Mr. Rivers, from whom Dr. Hogg received it in 1878." It has been extensively planted during recent years, and colours well under full exposure to the sun in summer.

Peach Foliage Injured (Horace).—We have seen Peach trees ruined by injudicious fumigation, and have experienced some damage therefrom similar to that presented by the leaves before us. They are, in fact, injured by "smoking the house well for green fly." The whole of the blistered or scorched parts will fall away, leaving them as if eaten by caterpillars to the veins and midrib. It gives a serious check to growth, and is not infrequently fatal to the crop, impairing the vitality of the trees. When the foliage is tender fumigation requires to be moderate, practising it on two or three consecutive evenings judiciously and carefully, having the foliage quite dry and the house not closed long before fumigation is practised, for after the house has been closed some time the foliage is full of sap, if, indeed, moisture has not been deposited on the leaves; or the fumigation, by heating the atmosphere, causes the moisture to be condensed by the cooler surfaces of the leaves, causing them to be injured. Care should also be taken to deliver the smoke as cool as possible. Its effects are usually most disastrous on trees that have been kept close, or during a period of dull damp weather. Ventilate freely before fumigating, so as to have the foliage dry.

Anemones from Seed (L. R.).—We have raised thousands of Anemones by sowing the seed as soon as gathered in drills about 5 inches apart drawn

across narrow beds or borders, subsequently thinning out some of the seedlings and leaving the others to flower. The seedlings if taken up in small tufts with earth adhering to their roots transplant very well in showery weather. They like rather strong but well-worked and friable soil, and if the position is shaded from the mid-day sun it will suit the plants admirably. Should the ground be dry at the time of sowing flood the drills repeatedly, and after sowing cover the seed half an inch deep or thereabouts with sifted soil, loam, leaf mould, and wood ashes being excellent, and spread mats on the beds for preventing the rapid evaporation of moisture, this being much better than often sprinkling the seed beds in hot weather. The drills should be deep enough that when the seed is covered the plants will come up in slight depressions; in that way water can be more effectively applied as it may be needed. We have also sown in April, some of the plants flowering in the autumn and very freely the following spring. If sown as soon as the seed is gathered flowering commences the following year. The fresher the seed is the better it grows.

Chrysanthemums in June (F. Godley).—When first examining the bloom we thought it resembled an imperfect example of the Queen of England. On submitting it to Mr. C. Orchard he expressed a similar opinion. He considers it a late bloom, as it is produced on matured wood such as we see in November. You do not say what time the plant was struck. Flowers of this type are often produced on the side stems of vigorous plants after the autumn flower is cut, or through the top of the plant being damaged or blind. During last month Mr. Orchard saw at Esher (in the gardens Mr. King has just left) clean fresh flowers of *Mlle. Laeroix* and *J. Laing*, while he has at the present time a bloom of *Empress of India* on a young plant 9 inches high produced on a cutting struck in December last. That he calls an early bloom. More particulars and better specimens are requisite for deciding on the name and merits of the variety. A very much superior bloom of another variety, quite incurved, was sent to us this week; and last year Mr. Millican exhibited several autumn-flowering *Chrysanthemums* at Chertsey on June 17th with foliage as fresh and blooms as good as are often seen in November. Plants raised from stem cuttings not unfrequently flower out of season.

Mushrooms in Boxes (G. B.).—The manure ought not to have been "cooled" but fermented, sweetened, and pressed when quite warm into the boxes. It cannot be too good when used in such small bulk, and may with advantage contain a less proportion of straw than is advised for large beds. On page 101 of the fifth edition of "Mushrooms for the Million" it is stated that Mr. Isaac Leedham grew full crops in boxes, using horse droppings alone; and on page 125 Mr. Fowler grew them from instructions in the work. After fermentation and the manure has been turned a few times to sweeten, it should, as is stated on page 30 of the work, be in the following condition:—In appearance there should be a homogeneous or inseparable mass of straw and droppings, the former preponderating, and broken in particles, none of which should exceed 9 inches, and few 6 inches in length, the majority being shorter; the mass should have a slightly greasy appearance, be warm brown in colour, and more than "warm" as regards temperature—in fact, it should be as hot as the hand can be borne in it. And now to the test for purity. This is simple. Draw a large handful from the interior of the bulk and apply it to the nostrils; if the result is in any degree offensive another turning is needful, but if no impurity is detected then the mass may be regarded as sweet. This is a negative test. A positive test is this—a rather pungent and somewhat agreeable scent, having a suspicion of the odour of Mushrooms. When this is the result we have the most tangible evidence of possessing a medium in the best manner suited for the production of Mushrooms. There is yet another element that must not be overlooked—namely, that of moisture. If the mass is too wet its decay will be too rapid; if it is too dry a steady and continuous heat will not be maintained. Generally speaking, however, when a heap of fermenting manure is well managed the four important requisites—texture, heat, purity, and moisture—will be present in the proper relative proportions; but still, with the object of making that matter plain to all, it may be said that the material must be sufficiently moist to be pressed into a firm adherent mass, yet not so wet that a drop of water can be squeezed from a handful of it by the greatest muscular pressure. If the temperature of the miniature beds (in the boxes) does not rise place them close together, and throw a covering a foot thick, more or less, over them of fermenting manure, and we think they will soon be ready for spawning.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (*H. J. P.*)—1, not recognisable; 2, *Staphylea colchica*; 3, *Lunaria biennis*. (*Orchidist*).—*Senticaria Hadweni*.

Ventilating Floors (L. B.).—"A Lanarkshire Bee-keeper" says if you read the articles on cheap hive-making you will find all particulars about making ventilating floors. The floor and stand combined is separate from the hive, as it should be. The case for the stand is made the same size as the hive, and in the same manner, from 4 to 6 inches deep—square, if square, and octagon if of that shape, or round, such as some straw hives are. Then feet not more than 9 inches high, nailed at proper angles, or in the corners of the square case. Now fill in the parts between the feet, and projecting half an inch beyond to within an inch of the top at front, and drooping towards the back, so that a little shutter or false floor, one-quarter of an inch thick, cleated with a bar at each end to prevent warping, is flush with bottom edge of back, where a little button holds it up, and at the front by one or a pair of hinges. The incline on this floor is for the purpose of getting the debris cleaned easily away, along with the many parasites that infest bees. The zinc is tacked on the top edge of the stand, and has five holes to the inch. All the damp falls to the bottom floor, and if peat such as "F. M., Dumfriesshire," uses is laid upon it, it will absorb the damp, and can be removed and renewed often, and all the parasites with it destroyed. The zinc is the floor proper, and is effectual in securing hives against moisture, provided other things necessary are performed.

With floors of this sort the entrances to hives can be kept much closer, which keeps the hive warmer and promotes breeding during spring where it is necessary to have wide doorways.

Name of Bee (N. G., Birkenhead).—Specimen almost too damaged for certain identification, but the insect is a species of *Osmia*, allied to the hive bee. It is a bee partly social, partly solitary in habit, and occurs at times very numerous about old walls, stony banks, and cliffs of chalk or limestone.

COVENT GARDEN MARKET.—JUNE 8TH.

Good supplies in hand, with business somewhat slower and prices easier.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, $\frac{1}{2}$ sieve	2	0 to 5	0	Oranges, per 100	6 0 to 12 0
" Nova Scotia and	10	0	13 0	Peaches, dozen	10 0 10 0
Canada, barrel	0	0	0 0	Pears, dozen	1 0 2 0
Cherries, $\frac{1}{2}$ sieve	0	0	0 0	Pine Apples, English,	1 6 2 0
Cobs, 100 lbs.	50	0	55 0	per lb.	0 0 0 0
Figs, dozen	3	0	6 0	Plums, $\frac{1}{2}$ sieve	0 0 0 0
Grapes, per lb.	2	6	4 0	St. Michael Pines, each	2 0 5 0
Lemons, case	10	0	15 0	Strawberries, per lb.	2 0 5 0
Melon, each	2	6	3 0		

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, dozen	1	0 to 2	0	Lettuce, dozen	1 0 to 1 6
Asparagus, bundle	1	6	4 0	Musbrooms, punnet	0 6 1 0
Beans, Kidney, per lb.	1	3	0 0	Mustard and Cress, puut.	0 2 0 6
Beet, Red, dozen	1	0	2 0	Onions, bunch	0 3 0 6
Broccoli, bundle	0	0	0 0	Parsley, dozen bunches	2 0 3 0
Brussels Sprouts, $\frac{1}{2}$ sieve	0	0	0 0	Parsnips, dozen	1 0 0 0
Cabbage, dozen	1	6	0 0	Potatoes, per cwt.	4 0 5 0
Capsicum, per 100	1	6	2 0	" Kidney, per cwt.	4 0 0 0
Carrots, bunch	0	4	0 0	Rhubarb, bundle	0 2 0 0
Cauliflowers, dozen	3	0	4 0	Salsafy, bundle	1 0 1 6
Celery, bundle	1	6	2 0	Scorzonera, bundle	1 6 0 0
Coleworts, doz. bunches	2	0	4 0	Seakale, basket	0 0 0 0
Cucumbers, each	0	4	0 6	Shallots, per lb.	0 3 0 0
Endive, dozen	1	0	2 0	Spinach, bushel	3 0 4 0
Herbs, bunch	0	2	0 0	Tomatoes, per lb.	0 9 1 0
Leeks, bunch	0	3	0 4	Turnips, bunch	0 4 0 6

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, dozen	8	0 to 12	0	Fuchsia, dozen	6 0 to 9 0
Arbor vite (golden), dozen	6	0	9 0	Genista, dozen	0 0 0 0
" (common), dozen	6	0	12 0	Geranium (Ivy), dozen	4 0 6 0
Azalea, dozen	18	0	30 0	Hydrangea, dozen	9 0 12 0
Begonias, dozen	4	0	9 0	Lilies Valley, dozen	9 0 18 0
Calceolaria, dozen	6	0	12 0	Lilium longiflorum, doz.	24 0 36 0
Cineraria, dozen	4	0	8 0	Lobelia, dozen	4 0 6 0
Dracena terminalis, doz.	30	0	60 0	Marguerite Daisy, dozen	6 0 12 0
" viridis, dozen	12	0	24 0	Mignonette, dozen	4 0 9 0
Erica, various, dozen	18	0	42 0	Musk, dozen	3 0 6 0
Eucynymus, in var., dozen	6	0	18 0	Myrtles, dozen	6 0 12 0
Evergreens, in var., dozen	6	0	24 0	Palms, in var., each	2 6 21 0
Ferns, in variety, dozen	4	0	18 0	Pelargonium, dozen	6 0 15 0
Ficus elastica, each	1	6	7 0	" scarlet, dozen	3 0 9 0
Foliage Plants, var., each	2	0	10 0	Spirea, dozen	6 0 12 0

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Abutilons, 12 bunches	2	0 to 4	0	Marguerites, 12 bunches	2 0 to 6 0
Anemones, 12 bunches	2	0	4 0	Mignonette, 12 bunches	4 0 6 0
Aran Lilies, 12 blooms	3	0	6 0	Myosotis, 12 bunches	3 0 6 0
Azalea, 12 sprays	0	6	1 0	Narciss, 12 bunches	2 0 6 0
Bluebells, 12 bunches	1	0	1 6	" White, English, bch.	0 0 0 0
Bouvardias, bunch	0	6	1 0	Pelargoniums, 12 trusses	0 9 1 0
Camellias, blooms	1	0	3 0	" scarlet, 12 trusses	0 4 0 6
Carnations, 12 blooms	1	0	2 0	Poinsettia, 12 blooms	0 0 0 0
" 12 bunches	0	0	0 0	Primroses, 12 bunches	0 6 0 8
Cornflower, 12 bunches	0	0	0 0	Primula (single), bunch	0 0 0 0
Cowslips, 12 bunches	0	6	1 0	" (double), bunch	0 9 1 0
Eucharis, dozen	4	0	6 0	Polyanthus, 12 bunches	2 0 4 0
Gardenias, 12 blooms	1	6	3 0	Ranunculus, 12 bunches	3 0 6 0
Hyacinths, Roman, 12	0	0	0 0	Roses, 12 bunches	0 0 0 0
sprays	0	0	0 0	" (ladoor), dozen	0 9 1 6
Ixia, 12 bunches	2	0	4 0	" Tea, dozen	1 6 3 0
Lapageria, white, 12 blms.	0	0	0 0	" red dozen	2 0 4 0
Lilium longiflorum, 12	3	0	6 0	Stephanotis, 12 sprays	2 0 4 0
blooms	0	0	0 0	Tropaeolum, 12 bunches	1 0 2 0
Lilac (white), French,	4	0	7 0	Tuberose, 12 blooms	0 9 1 0
bunch	0	9	1 0	Tulips, dozen blooms	0 2 0 4
Lily of Valley, 12 sprays	0	9	1 0	Violets, 12 bunches	0 4 0 6
" 12 bunches	2	0	6 0	" Czar, French, bunch	0 0 0 0



OUR CEREAL CROPS.

BARLEY.

When Wheat became so cheap and the depreciation in value appeared likely to continue, the culture of Barley assumed such a degree of importance in the eastern counties as it had never had before. Barley was to prove the

farmer's chief support under the depression; to it he turned for the profit which of yore he obtained from Wheat, and to it he often turned in vain, for in common with all farm produce it fell off so much in value that profitable culture was out of the question with but few exceptions. These exceptions were, and we may say are, in favour only of choice samples of malting Barley, for which 40s. a quarter was to be had even after the last harvest, and such a price for what may be termed a crop of 50 bushels per acre is a paying one, but alas! how few and far between were the fortunate growers of such samples.

The season of 1886 was undoubtedly a most unfavourable one for the production of clean bright samples; so unfavourable was the weather that much of the grain was discoloured in the ear before harvest, so that for one sample of Barley worth 40s. there would be twenty not worth much more than half that amount. No matter how large and fine the grain might be, if it were coarse and discoloured it could only obtain a sale for grinding purposes. Of malting Barley we may safely venture to say that the average price was 33s. per quarter; occasionally we saw samples for which 34s. was obtained, and at rare intervals as much as 40s. might be heard of, but very seldom indeed did that happen. No doubt much Barley sold to middlemen and merchants at low rates as grinding Barley was eventually converted into malt, but it was then out of the hands of the grower, and the maltster got the benefit, or at any rate the lion's share, of it in the transaction.

Since quality tells so much in Barley, the grower must be on the alert to do all he can to secure it in his grain. He cannot command quality, simply because a week of unfavourable weather as the corn ripens may affect it so seriously as to spoil it for malting purposes. But he may do much by sowing carefully selected seed, not necessarily of very large size, but rather of fine form and of a medium even size. We had a sample of what was termed pedigree seed Barley offered us at a certain market which we declined at once without any inquiry about price, simply because the grain was so large and coarse. It had in point of fact precisely the appearance of Barley grown on undrained heavy land, and which, useful as it undoubtedly is as grinding Barley for cattle food, is seldom if ever converted into malt. If, however, a very heavy crop of it can be produced then it might answer, and only then.

The mention of quantity or bulk of crop reminds us of the remarkable results of Mr. Cooke's experiments at Flitcham with different chemical manures, to which we have already called attention, and about which he was good enough to communicate an interesting note last week. Mr. Cooke has proved to demonstration that Barley cannot be grown to full advantage without a certain proportion of potash in the soil. Let it not be supposed, however, that because with potash he had 54 bushels of head corn per acre, and without it only 11 bushels, that potash is the one fertiliser necessary to success in Barley culture. Rather let it be understood that it cannot be grown to advantage without potash. To set the matter clearly before our readers we may state that the proportion in decimals of manurial constituents in an acre of Barley, the average bulk of which is 50 bushels of grain and a proportionate quantity of straw, is nitrogen 54, phosphates 54, and potash only 44. In clay soils, therefore, a dressing of nitrate of soda, steamed bone flour, and mineral superphosphate would suffice; we might even venture to leave out the superphosphate

were we certain the steamed bone flour was genuine. For ordinary bone flour the addition of superphosphate a few days previously to using would be indispensable.

Glad are we to see due prominence given to the Norfolk experiments in the last number of the "Journal of the Royal Agricultural Society of England." The importance of such experiments can hardly be overrated, for if the British farmer is to tide over the depression, and if agriculture is to take rank as a science, it will be by the help of such good men and true as those members of the Norfolk Chamber of Agriculture who have devoted their land and their time to such good purpose.

WORK ON THE HOME FARM.

Warm weather and genial showers have set the grass growing to good purpose, and we may now feel assured of a full crop of hay. The mowing machines are being put in order, and all other implements used in the haymaking will now be examined and got ready for use. Enough faggots will be required for the bottom of each hayrick to keep the hay from contact with the soil. Without faggots the hay at the bottom of the rick becomes musty and worthless. Patent as this simple fact must be to everyone, yet we have seen rick after rick made without faggots or wood of any kind being used, and much good hay spoiled.

Mangolds are growing briskly, and the plants will soon be forward enough for singling; meanwhile the horse and hand hoes are kept going between the rows to keep the soil stirred, and to keep down weeds. Early-sown Swedes have come up a thick strong plant, and with the soil so moist and warm growth will be so quick that we have very little fear of injury to the crop from insects. Thousand-headed Kale, too, drilled in rows are almost forward enough for transplanting. We like to drill as much land as we can with this useful crop, and transplant to other land for a successional crop to follow the plants left undisturbed in the drilled rows. To those farmers who have not tried Thousand-headed Kale we strongly recommend it for cattle, sheep, and pigs. It also affords an excellent supply of green food for dairy cows.

Maize for use as green food and for silage is usually sown about the first or second week in the present month. The first sowing is coming up well, but it had to be watched closely, for rooks are very fond of it, and are not to be kept off without a watchman being near the Maize from dawn till twilight. This is a most important forage crop, affording a greater bulk per acre than anything else we have tried. Cows are most eager for it, eating the juicy succulent green stalks ravenously, so that care has to be taken to allow them only a moderate quantity, for if they have as much as they can consume it is liable to affect the flavour of the butter so much as to render it unpalatable.

Winter Tares are now in use for the dairy cows, a liberal proportion being chaffed and mixed with dry food for them. Rye, upon which sheep were folded, has such a poor second growth that we have reserved a few acres for seed, and have ploughed in the remainder for Swedes.

OUR LETTER BOX.

Turkeys Dying (R. W.).—From your description they are suffering, we should say, from catarrh or cold, which the late sudden change in temperature will fully account for. Remove those affected at once to a dry well-sheltered and moderately warm place, and feed on soft nourishing food, to which you might add a teaspoonful of Thorley's spice, or sprinkle a little pepper or ginger in the food. If the eyes are puffed or swollen sponge them and the nostrils with warm water.

METEOROLOGICAL OBSERVATIONS.


CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain	
1887. May.		Baromet- ter at 32° and Sea Level.	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.		On grass
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
Sunday	29	29.932	49.6	41.8	N.E.	51.0	62.5	44.8	106.6	41.8	0.014.
Monday	30	29.934	50.7	49.4	N.E.	51.0	62.3	46.6	84.2	46.6	—
Tuesday	31	36.083	68.4	55.1	N.E.	51.3	62.4	48.1	113.9	43.0	0.012.
Wednesday ..	1	29.915	54.6	52.8	N.E.	52.7	65.9	48.0	103.4	46.3	—
Thursday	2	29.752	51.2	49.8	N.	53.2	58.8	47.7	73.4	43.7	0.350
Friday	3	29.635	54.7	53.9	N.	52.6	55.2	49.8	91.6	49.8	0.507
Saturday	4	29.940	53.4	53.3	S.W.	52.4	62.8	47.8	116.2	44.3	—
		29.832	53.7	51.6		52.0	63.4	47.5	99.0	45.5	0.883

REMARKS.

29th.—A glimpse of sun in afternoon, otherwise cloudy all day, with slight showers in evening.
30th.—Dull and damp early, overcast morning, fair later.
31st.—Fine and bright, slight rain at night.
1st.—Dull morning, fine afternoon and evening.
2nd.—Dull throughout, rain at 5 P.M., wet evening and night.
3rd.—A thoroughly wet day, rain incessant until 9 P.M.
4th.—A fine bright day.
Another rather dull week of average temperature, but deficient in sunshine.—G. J. SYMONS.



COMING EVENTS

16	TH	Linnean Society at 8 p.m.
17	F	
18	S	
19	SUN	2ND SUNDAY AFTER TRINITY.
20	M	
21	TU	JUBILEE DAY. Leeds Show (four days).
22	W	

HARDY AZALEAS.

AERICAN gardens were at one time favourite adjuncts to the ordinary flower garden, a number of beds being specially devoted to selections of the numerous beautiful shrubs and plants with which North America has enriched European establishments. In some gardens that were planned fifty or sixty years ago such departments are still maintained, and in modern gardens they are also occasionally seen, Rhododendrons, Ledums, Kalmias, but especially the hardy deciduous Azaleas forming the chief feature of such beds, and when the situation is well chosen, the soil suitable, and taste is exercised in the general design and planting, the American garden can be rendered a delightful retreat during the early summer months.

The value of Rhododendrons is familiar to all, but it seems that the merits of hardy Azaleas are not fully recognised by those engaged in the formation or planting of new gardens. They yield their flowers in the greatest profusion, the colours are much varied and rich, and a large proportion of the varieties possess a peculiarly agreeable powerful fragrance. Many of those that flower before the leaves are fully out become masses of the richest yellow, orange, red, and rose-shaded flowers, the brilliant effect of which can scarcely be realised by those who have not seen a number of plants together. A capital example of the beauty and utility of these plants is supplied by the American department in the Royal Gardens, Kew, and though this is situated in the arboretum quite out of the track of the ordinary visitors, it yet attracts numbers of persons every year, who are enthusiastic in their admiration. An extensive open space partially surrounded by trees is occupied with a number of curved or irregular beds cut in the turf, and these are filled with some hundreds of large old bushes, that at the present time are covered with flowers, filling the air with a fragrance perceptible at a distance of some hundreds of yards when there is a moderate breeze. Somewhat sheltered positions such as this suit these Azaleas, chiefly because their flowers are soon damaged by wind in exposed places. Similarly they do not thrive in very dry soils, for most of them are derived from the swamp-frequenting North American species, and even those that are not found in such wet localities are chiefly confined to woods where they enjoy considerable moisture and protection. The soil must be well drained, and though a compost of peat and loam is generally employed the former is not essential, as turfy loam not too heavy with a good proportion of leaf soil will make excellent beds for them.

The hardy Azaleas cultivated in English gardens have originated from the Mediterranean *Azalea pontica*, the

North American *Azalea calendulacea*, *nudiflora*, *viscosa*, *occidentalis* and *speciosa*, and the Chinese or Japanese *Azalea sinensis* or *mollis*. These have been much intercrossed, and the respective types are now connected by so many intermediate forms that it is not easy to classify them under their respective species. In the older forms the parentage can be more readily detected. All these species are extremely variable, frequently sporting, and by natural cross-fertilisation they had yielded a number of varieties before they were taken in hand by hybridisers here.

They were first popularly known as American Azaleas, and subsequently, after they had received much attention in Belgium, and the number of forms had been artificially increased very largely, they became known as Ghent Azaleas, while now the progeny of *A. mollis* are commonly termed Japanese Azaleas, and a collective term for them is hardy hybrid Azaleas.

The European *A. pontica*, which is found in Turkey and the Levant, is a deciduous shrub with ovate ciliated leaves and yellow open shallow corollas, not unlike *Rhododendron ponticum*, but readily distinguished by the characters named. It does not appear to have been introduced to England so early as some of the American species, but it has produced a number of varieties ranging in colour from pure white to dark coppery orange, and it has been useful in crossing with the other species.

Of the American Azaleas, one of the first brought to this country was *A. nudiflora*, which, according to the elder Aiton, was introduced by Mr. Peter Collinson in 1734, and before the close of the century several varieties of it had been added to collections. The flowers vary in tint from white to blush, pink, rose, red, and scarlet; they are tubular in shape, and suggestive both in shape and fragrance of the Honeysuckle, under which name, with the prefix Wild or Upright, it is known in the United States. It is frequent in swampy districts in several States, and Gray remarks that the varieties are numberless. This is a charming type, owing to the rich colours prevailing in the flowers, their powerful fragrance and the freedom with which they are produced before the leaves are fully expanded. It is also known as the May-flower in America, in allusion to the time at which it blooms. About fifty varieties have received botanical names and been admitted into authoritative works, and the characters of the respective species are well preserved throughout.

As the White Honeysuckle, another American species, *Azalea viscosa*, is familiarly known in its native home, where it is chiefly found in swamps near the coast in the northern and eastern States. This materially differs from the preceding (introduced at the same time) in producing its flowers when the leaves are fully expanded; and though the plant is beautiful it does not present such a mass of colouring as *A. nudiflora*. The shades, too, have not so wide a range, being confined to white or yellow with a rosy tinge, but the flowers are borne in large trusses, and are very fragrant.

The flame-coloured Azalea, *A. calendulacea*, is of similar habit to *A. nudiflora*, but has larger, more open flowers, and of yellow, orange, or reddish hues. It is a native of woods and mountains in Pennsylvania, and from it has been obtained a large number of handsome varieties. *A. speciosa* and *A. occidentalis*, allied species, have also been concerned in the production of hardy varieties, but the foregoing are the principal types.

With regard to *A. sinensis* or *A. mollis*, for these are

now considered synonymous, there has been some confusion. About 1829 this plant was brought into notice under the name of *A. sinensis* in "Loddiges' Botanical Cabinet," and in the "Botanical Register" as *A. pontica* var. *sinensis*. It appears to have been obtained from China several times by Loddiges of Hackney and Mr. Wells of Redleaf, but Lindley considered it an imported plant, and remarked that he thought it "extremely probable that these Azaleas have found their way to China from the Caucasus by the intervention of some of the Russian caravans which annually visit Nertchinsk for the purpose of trading with the Chinese, and he could not detect any characters to separate it specifically from *A. pontica*." In 1867 an Azalea was introduced from Japan and named *A. mollis*; it attracted the attention of horticulturists on the Continent, and during the past twenty years many very handsome forms have been raised from it, surpassing all the others in the size of the flowers and trusses, but wanting fragrance, and the colours only consist of shades of yellow, orange, or reddish orange. They are, however, extremely handsome, very early, and especially useful on this account for forcing, as though hardy they are sometimes damaged by our late spring frosts.

The first systematic attempt on a large scale to improve these hardy Azaleas was made by Mr. Gowen at Highclere, the seat of the Earl of Carnarvon, and by 1831 about 500 seedlings had been raised from various crosses between *nudiflora*, *pontica*, and *calendulacea*. About 400 seedlings were obtained from the plants fertilised with pollen from *A. pontica*, and it was observed that, curiously enough, three-fourths of them closely resembled the latter in habit and foliage. From these thirty of the most distinct varieties were selected, named and described, giving a great impetus to the culture of hardy Azaleas. Several British nurserymen took them in hand, especially Mr. Waterer of Knap Hill, Woking; the Belgian growers rapidly increased the number of forms, and they became favourites in many gardens, a position from which they have partially declined, but to which they amply deserve to be restored.

At the Royal Horticultural Society's meetings on May 24th this year Messrs. J. Veitch & Sons showed several interesting hybrids between *Azalea occidentalis* and *A. mollis*, two of which were certificated—namely, Maiden's Blush, warmly tinted with rose, the upper lobe yellow, very fragrant and profuse; and Beauty, delicate blush tint with a yellow blotch in the upper lobe, also fragrant and free. The flowers were large, tubular, but open and very beautiful. These are shown in the two lower trusses in the illustration (page 487), while at the upper part are some varieties of the *occidentalis* type shown by Mr. Anthony Waterer on the same occasion and certificated. Snowflake is pure white, very fragrant, and one of the best of its class; the other, Peach Blossom, is a double variety of the same type, bright pink, and similarly fragrant.—L. C.

[SIZE v. QUALITY IN POTATOES.]

WE have received the following characteristic letter from Mr. Robert Fenn, a veteran in Potato growing and a pioneer in the improvement of varieties:—

I have sent you a few of my pedigree seedling Potatoes to eat (if you think them good enough), as I pitied you when reading the wail about Potatoes degenerating. I felt sympathy for your system. Indigestion and its attendant evils, if the esculent has become so scarce an adjunct for food, must prove inevitable. Is it so? Have we not equivalents? I know the old sorts of Potatoes are scarce, and to attempt to grow them profitably is labour in vain. I grew them as old friends loth to be parted with as long as I could

till they dwindled away, but I have handed down their flesh and blood, so to speak, by years of consecutive crossings, and thus have them in memoriam.

In the Sir Charles Douglas I send you may possibly detect the combination of the old Regents, Daw's Matchless, Fluke, Cambridge Kidney, Onwards, Red Emperor. In the first early, Faith, you may possibly recognise the old Early Ashleaf, Shutford Seedling, Turner's Union Round, Hogg's Coldstream, Onwards, and in both of them the best features of the American Rose and Snowflake. At any rate, the above is their mixed origin, and I could ring you the changes on all my seedlings, in combination of the best of our old English sorts, which, like nearly all my old friends, are gone.

There is a lot of rubbish taking their place (Potatoes, I mean), and there will be more as long as the rage for mere size sways the fashion of the day. I scarcely know whether I ought not to consider myself obsolete, but let me hold you by the button a few minutes longer as an old friend in horticulture, and to the Potato in particular, to assure our friends that we have as good sorts now as we had sixty years ago, and to prophesy that in sixty years to come there will be quite as good, if not better, sorts then than there are at the present time, but study for quality *versus* mere size will have to play its part to achieve it.

Apropos, a Potato grower and merchant a few months ago in conversation said he did not approve of my sorts. His were the coming Potatoes! his were to be the seedlings of the future! (I do not think he ever raised one). They would produce for him five to six tons per acre more than mine for the market, and that so soon as I was dead my seedlings would die with me, and be heard of no longer! Well, as I am about to strike seventy, this consoling intelligence cannot be at a very distant date. I congratulated my friend, but at the same time I begged to assure him that our ideas about Potatoes were as far apart as the poles asunder; that I merely studied the Potato in its features as sustaining food, and that I doubted his philosophy reached no farther than his breeches pocket, counting on mere size and sorts bibulous of water, which would fill so many sacks per acre. I think this breeches pocket improvement has much to answer for ament the depreciation of Potatoes; at any rate I have not offered any of my seedlings lately to commerce. I am, nevertheless, pulling against the stream, in hopes of seeing the tide turn, and working as hard as ever on my favourite study, with no hopes whatever of being able to better what I have done, as I delve amongst the wildings, unless I could live over another lifetime; but the labour is in stronger hands, having youth at the prow, and more power to their elbows. I think, however, I can feel an undercurrent running in the press against the unwieldy size that has of late years been fostered by dealers and horticultural societies. I got such a cold-shouldering at the Royal at South Kensington last autumn, to forbid my appearing there again till their rage for size is over. Many sorts of the Potatoes there exhibited, and gaining prizes by being pampered to an abnormal size during their process of growth, were of my own crossings, whilst my selection exhibited, as bringing a life's work into view as instructional, was passed over by the judges and the committee without a "Thank you."

I am your oldest contributor, although the honour is claimed by others, and I want to try to persuade your younger people against unnatural hankering after monstrous vegetables, fruits, or flowers; all become deteriorated by coarseness, and to gain this coarseness large extra sums of money must be spent, and the credit goes to the longest purse for spoiling that which is intrinsically good, and thus again the cry of deterioration is fostered. Having been a co-writer with Donald Beaton in these pages, I cannot forget the valuable advice I obtained from him against abnormal size in everything, and I feel positive poor old Donald was right. Print this if you like to do so.—ROBT. FENN.

[We have no hesitation in printing Mr. Fenn's letter, first because he is an old friend whom we shall always esteem both for the excellence of his motives and the merit of his work; and, secondly, because a vein of wholesome truth runs through his communication. Mr. Fenn in his life work has been endeavouring to do good, and he has done much. He has striven for high quality in his intercrossings, and this he has stamped on many of his seedlings. This is apparent in those which he has been good enough to send to us in a moment of commiseration for our unfortunate condition in having, as he thinks, to rely on London market Potatoes. In that event there would be good grounds for his sympathy, for we are obliged to confess, notwithstanding all the prizes that have been offered towards the improvement of the Potato, that in our opinion the average quality of the great bulk of the produce now sold in London is lower than it was a quarter of a century ago. The Potato Exhibitions, "International" and otherwise, have done good, inasmuch as they have stimulated to better culture. They have

done good to growers and vendors, but the great bulk of consumers have not to the same extent benefited through the agency of the shows. Prizes have been awarded to Potatoes on account of their size and appearance alone, quite irrespective of quality, with the result that varieties have been grown that were not, perhaps, intended to be eaten, but only to be "staged."

Of late years more attention has been devoted to quality, and notably in the Chiswick trials. But the fact remains that varieties have been certificated that are not likely to be of service in contributing to the food resources of the country; while others that have proved useful in this prosaic way have had no such honours bestowed on them.

The honouring of size and ignoring of the quality of Potatoes continued too long. We have more than once protested against it, and have not been thanked for doing so by fanciers and judges. At the same time, not being sentimentalists, we would avoid going to the other extreme in advocating the culture of medium-sized Potatoes only, on the ground of their generally better quality. Though these we grow because they answer our purpose, the great fact has to be recognised that the multitude has to be fed, and with the million this is very closely an affair of the "pocket," a great bulk of fair quality for a given sum finding more favour than a lesser bulk of higher quality in the market. The demand being of that character, it must be met, and it can only be met with fair profit to the growers by the cultivation of varieties that produce heavy crops, not a limited number of very large tubers, for such are not readily saleable, but by the greatest possible yield of tubers of medium size; these, even if the quality is much below our standard of excellence, give the greatest satisfaction to the majority of consumers in towns and of growers on farms in the country.

Recognising that fact, for fact we apprehend it is, bulk cannot always be ignored, even if defects in quality are apparent, in producing food for the masses in populous places (who are in the blissful ignorance of not knowing what really good Potatoes are) we are yet strongly of opinion that much more attention should be given to the quality of Potatoes and other vegetables that are grown by gardeners for home use than at present appears fashionable, and less to mere size or bulk of produce. Judges at shows have much to answer for in lowering the quality of Potatoes for home use. A false standard of excellence is set up, the outcome of which is that there are young gardeners and their affluent employers like their hungry and humble brethren in towns, in not knowing what first-rate Potatoes are. When Potatoes are served in their highest excellence small tubers of the kinds are selected, large ones being rejected; and those with a sulphury tinge are usually better flavoured than tubers as white as superfine flour. The samples sent to us by Mr. Fenn we could find no fault with. They were the reverse of large, and those of Sir Charles Douglas not as symmetrical as eggs; but as regards quality they were far in advance of the London standard, also of that of not a few country houses we have from time to time visited.]

PLANTING STOCKS AND ASTERS.

FREQUENTLY these plants are left too long in the seed bed, or, more correctly speaking, in the position in which they were transplanted from the seed pans or boxes. They are, in the majority of cases, pricked out into some moderately light rich soil in which has been incorporated a liberal quantity of leaf mould. This induces rapid growth after the plants are once fairly started, and if left under these conditions for too long, they attain a large size, and are severely checked when transplanted. The longer Stocks, whether Ten Weeks, Intermediate, or East Lothian, are left, the greater the difficulty in removing them without flagging severely for some time after planting. Stocks that are long left in the same position are certain to move badly, for they naturally form rather long strong roots which are almost destitute of fibre. When finally planted in a moderately small state they can be lifted with good fibry roots, and if done during showery weather, they quickly take to their new quarters and grow vigorously from the first. To grow Stocks thoroughly well they should be planted out where they are to flower in a small state, so that they may be checked as little as possible. No comparison can be drawn between those planted out while comparatively small and before they crowd one another, and those that are allowed to attain a large size, but are weakly. Sturdy plants and early planting in fertile soil is the secret of having Stocks of an exceptionally fine character, well branched, and possessing large bold full spikes of bloom.

Asters are more inclined to form large quantities of fibre, and therefore can be transplanted with greater certainty of doing well than Stocks. But it is unwise to allow them to become too large before they are planted out. Only last season we were impressed

with the importance of placing them out early before the plants really commenced vigorous growth and became crowded. Both Stocks and Asters branch freely if dwarf sturdy plants are put out directly the state of the weather will allow of this being done. If the soil in the bed or border in which they are to be planted is good, the latter should not be placed nearer than 1 foot apart, and the former 15 inches. Half the beauty of these useful plants is not developed, for they are often partially destroyed in their early stages of growth, or ruined by being planted too closely together. Those who have adopted such practices will be surprised at the result of the more liberal system of treatment advised if they carry it out properly.—D. A.

SPINACH.

MORE anxiety is caused by this than perhaps any other vegetable crop. The summer crop runs to seed in a short time, the plants being scarcely above ground when they "spindle," the leaves being insignificant, and as that is the useful part, dishes are obtained with difficulty in hot weather. Then the winter crop is liable to disappear in an unaccountable way. The plants are, for a time, very healthy, and promise an abundance of large and fleshy leaves, but the plants begin to turn yellow at the points of the leaves, the whole plant soon assumes a sickly hue, growth has ceased some time, and collapse is only a matter of a few days. The disaster is not caused by any grub, nor is there any evidence of the mysterious agency of fungus.

Having tried many plans and schemes, I had come to the conclusion that there was no escape from Spinach failures. I had grown all sorts, kept well posted, and come to look on Spinach vagaries with complacency. I sowed a large breadth down after early Carrots, another after French Beans, and a third after Peas, second early, there being a fourth after Cauliflowers. Those independent of the private supply, which was had after whatever might be off in time, a reservation of ground of course being made, which was that of early Potatoes, Peas, &c., generally the Peas, with a good coat of well-decayed manure applied and dug in, and sometimes after Cauliflower. Good and necessary, however, as is rotation of crops, I have found ground highly cultivated will grow anything, only following with crops of the same sort comes to disaster in the end, and the longer it is continued the greater is the disaster; therefore, all I shall say of the rotation is that the Spinach does best after Peas, Potatoes, and Cauliflower in that order, and better than anything after summer Onions—i.e., those that are bunched, as the Tripolis. But I hardly think rotation has much to do with the failure of Winter Spinach. In all the cases named the Spinach was grown on the flat at the usual distance of 18 inches to 2 feet between the rows, and the plants a foot apart in the rows. That, however, after Carrots, went off worst; then the French Beans, and Cauliflowers next. Now we have a departure from the flat system. Between the rows of Peas I had Celery, trenches taken out in the usual way and laid alongside the Peas. The Celery failed. I had the wide ridges sown with Spinach after cleaning and levelling, but not filling the Celery trenches, as that would be useful for the house. I had three rows on each ridge. The Celery trenches were 18 inches wide, and the Spinach ridges 4 feet 6 inches wide. The Spinach grew well, and I waited for Mr. Salesman's telegrams, sending only the usual consignments, and left the ridge Spinach alone. Fully half the Spinach plants on the Carrot plot had collapsed. That after the Cauliflower was much the best, but sparrows took a fancy to it and tore the leaves into shreds, and that after French Beans was not bad, only late, as the ground had been dried in its two senses—i.e., moisture and food, by the French Beans. The home supply had been also culled, as the supply exceeded the demand. It came at last. "Send on—Spinach scarce and dear." All hands were set to work and every bushel filled. This was off the Celery ridges, and it weighed over 2 lbs. more per bushel than the other. For the extra trouble I receive 3s. per bushel, less by 1s. 6d. than before. I received no more telegrams about Spinach.

The Spinach on the Celery ridges stood high and dry. That is something in favour of Winter Spinach; but the chief is it was mulched with short manure. The way to get Winter Spinach is to sow on ridges like Mangolds, thin to about 6 inches apart—taking out every other plant at the first gathering—and mulch. To get summer Spinach sow also on ridges and mulch. The best I have had, either for winter or summer, has been Veitch's Victoria, which has thick dark green leaves, very fleshy, and is not liable to run to seed so soon as many others. Monstrueuse de Carentan is also a fine fleshy leaved sort of the Flanders type, and good for either summer or winter. Prickly is good for winter, and Round for summer. I sow about the 10th of August for the winter supply, and every fortnight up to the same date in September. The summer supply

is had from sowings made fortnightly from the middle of February, or as soon as the weather is favourable, up to the end of July. The system of sowing Spinach as thick as Mustard and Cress deserves to fail, as it usually does when wanted. On the raised ridges it has plenty of air, is sturdier, and the leaves are thicker. Manure buried only causes excessive luxuriance, and renders the plants highly susceptible to frost.—UTILITARIAN.

NOTES ON APPLES.

HAVING nearly a thousand varieties of Apples it may interest some of your readers if I send the names of those which I have found making the best show of blossom this year. Irish Peach and the Astrachans were, as I have always found them, the earliest. Those having the greatest profusion of blossom were Jaques Lebel, Golden Spire (fine rose colour), Piles Russet (fine rose colour), Reinette Jaune Sucrée (light), Rosehill (pink), Large Cockpit (pink), Belle Mousseuse (pink), Lady Derby (true), not Whorle Pippin of the Chiswick Congress, was of a fine deep colour, and had a good show of blossom.

The latest have been Court Pendu Plat, Lodgemore Nonpareil, The Bess Pool, Grange's, Evargil Pippin, and an Apple exactly like Bittersweet in fruit but totally different in blossom; I had it some years back for Siberian Harvey, but it does not at all agree with the description of that Apple. These six are almost without leaf when the blossom comes out. Some late ones were pretty, most of them light coloured—namely, Chazé (light), Defiance (light), Kienle (small pink), Sarry Alma (white, very pretty and distinct), Red Fall Pippin (light), Flushing Spitzemberg (light), Buncombe (light), Land Sandwich (large Rhododendron-like blossom, good leaves), Reinette Pippin (good light). The latest of all was Ebner's Tuffetapfel (small pink bloom). For beauty nothing has come up to a wild late hedge-row Crab.

My plantings range from 300 feet above sea level to 600. This range has not apparently this year made any difference in the time of blossoming of the different sorts. I have not been from home, so I have not had an opportunity of seeing the differences made by latitude, mine is 52°42' N. When in fruit none of my Apples come near Worcester Pearmain in beauty.

I sent you some specimens of Worcester Pearmain in February; I now send you a few to show you that after being eatable for more than nine months, since the latter part of August, it is still not the worst of Apples. Having several hundred trees of this they have been a very pretty sight when in blossom, not a failure among them. The season is quite three weeks late, so unless we have very forcing weather they cannot be as early this year.

The Chiswick Congress of 1884 made Guernsey Pippin and Golden Harvey identical. There is great similarity in the fruit, but the early leaves of Golden Harvey are of a much brighter green than those of Guernsey Pippin, which are of a greyish green. The blossom stalks of Guernsey Pippin are much the shorter.—PHILOMELOS.

MR. F. BAUSE AND HIS WORK.

SOME time ago the name of Bause was more familiar than it has been of late, or at least was more prominent in the gardening press. Several years have elapsed since he won his spurs as a hybridiser in the production of a famous batch of Coleuses—the progenitors of the best existing varieties; he subsequently revolutionised the Dracenas by his extraordinary success in cross-fertilisation in the Auerley Nurseries, where he was also fortunate in raising several new Ferns, Adiantums Bausci, Lathomi, Victoriae, and others that it is not necessary to enumerate. But of late little has been heard about the author of those achievements beyond what may be described as his home circle and the "trade."

All the world is not aware that Mr. Bause, who worked so successfully for others, has for the last three years been engaged in establishing a business of his own. By untiring industry, indomitable perseverance, and skilful management he has attained a position on which his friends are glad to congratulate him. Some three or four years ago he purchased a barren plot of ground. He had then no glass, no plants, and not, perhaps, much money. He has now some of the most useful structures to be found for "manufacturing" and growing plants to a decorative size; possesses "stock," which is in one department at least—Dracenas—probably unequalled in the kingdom; Palms, not easily surpassed in the way of "marketable" plants; Aspidistras in such numbers as are seldom seen; a good collection of Crotons; and a few other kinds of plants to which he devotes attention. Mr. Bause's line of action consists in growing a great number of a few kinds, and growing them well, rather than growing a few of many and not having a first-rate stock of any. What he has must be as good of its kind and for its purpose as is producible, or he is the reverse of comfortable, and is not content till he is abreast of his friends and fellow workers at home and abroad.

The "glass" in the Morland Nursery, South Norwood, consists of eight span-roofed houses, four of them each 90 feet long and from 12 to 16 feet wide; the other four being 40 feet long, the whole of them strong, durable, well arranged, and amply heated structures, having been

erected on the sound principle that the best materials, workmanship, and "plenty of piping," though involving a little extra outlay, is the most economical in the end. The sashbars for glazing are 3 by 1½ inch, every sixth stronger for giving greater rigidity and supporting shelves, strong glass being used in squares 12 by 18 inches well embedded in putty, but top putty abandoned as superfluous, as are side lights or sashes, the roofs resting on the wall plates. In the larger houses are central flat stages 7 feet or 8 feet wide, with a path round, and narrow side stages. These are not of open latticework, as the plants grown thrive best on a close damp base of cocoa-nut fibre or ashes, nor is great provision made for ventilation, Mr. Bause not being a believer in creating moisture in a house for the benefit of plants and driving it out with a rush. Yet his plants are sturdy or they would not endure their ten miles drive more or less to Covent Garden in winter, and the exposure to which they must be submitted in the draughty covered market. No matter what the season or weather, a market day (twice a week) is never missed; and it is generally admitted that no plants of their kinds that are sent to the great emporium surpass, if equal, those in question. Mr. Bause has simply "topped the market," and therein rests his success. "Growing plants for market does not pay," say hundreds of persons; and they are right—they do not pay because there are others better there, and only those of the first quality meet with a ready sale at remunerative prices. Nothing proves the metal of a man like growing produce for market in these days of keen competition at home and from abroad. Mr. Bause is one of those who does not sit down and grieve over foreign competition. He took the measure of continental producers, and can now grow plants of given kinds, that he does grow, as well, if not better, than they can, and sell them as cheap if not cheaper, the best proof of this being his exportations; he sells to the Continent as much "stuff" as he buys from it, and often more, but his home-grown plants are preferred by his customers in the market, the "trade" and private individuals for he does business with all, and with a continuance of health and strength is bound to do more.

"Growing for market is hard work, but —." We are left to guess what the "but" with the accompanying shrug of the shoulders means. It may be suspected to mean money, ready money; and a system of large sales with small profits on that basis is better than slow sales, large profits, and long credit. "We have now," continued our plant manufacturer, "to sell for 2s. 6d. what a few years since was sold for 7s. 6d. and 10s., but —." Possibly the "but" here means that it may answer as well to sell twenty plants daily for as many half-crowns as to sell one for four of them, as in the days of larger profits and slower trade. There can be little doubt that the trade in high-class ornamental foliaged decorative plants has increased by much more than twentyfold during the past ten years; and these are the plants to which Mr. Bause devotes his attention. Let us glance at them.

Dracenas astonish by their numbers. They are in all stages, from an inch high in thumb pots to handsome, well-furnished, and brightly coloured salable plants, 18 inches to 2 feet high, in 5 to 7-inch pots. A few of the more prominent are Mrs. Robert Turner, a new bright, broad-leaved variety, colouring from its infancy; Fredericki, surpassing terminalis in colour and decorative value, the demand exceeding the supply; Terminalis alba, useful and "takes well" in the market; but Alexandra is the best white, early in colouring, free and pure; Madame Charles Heine (Chautrier) is a sturdy grower, in the style of Mrs. Wills, with elegant drooping leaves; Gladstonei remains one of the most massive and rich; Peudula is distinct and beautiful, a great improvement on Cooperi, very hardy, and 10,000 have been sold; Renardæ is a favourite as a dwarf, sturdy, early-colouring variety, for which the demand is great; Rossi is good, resembling magnificæ in habit, but richer in colour; Madame F. Bergman (Chautrier) is imposing with its broad-spreading, richly coloured leaves. The best of the narrow-leaved forms for table decoration are augustifolia (Williams) dark red; Earnesti, dwarf, rich; superba, crimson, free, upright; and Sydneyi, slender, drooping, and bright. Only one more can be mentioned, Dannelliana, the finest stock probably of the best green Dracena in cultivation; it is known as the best variety of rubra, and had become scarce. Mr. Bause appears, however, to have hit on a ready method of increase. It is one of the best of room and market plants, rivalling the Aspidistra in hardiness and enduring rough usage.

Palms next demand attention. He would be a bold man to say how many thousands there are, some coming up as thick as grass in paus and boxes under stages. A sowing of 80,000 seeds of Cocos Weddelliana gives an idea of the demand for that elegant Palm, the plants "going" as fast as they are ready; the slower to grow (the seeds being two years germinating), but not less elegant, Geonoma gracilis, is represented by 10,000 plants. These are the two most graceful Palms known. Then we find quite a forest of the valuable Kentias Belmoreana or Fosteriana, and the more sturdy Canterburyana. These, by their darker leaves and better "character," have practically driven the once popular Seaforthia elegans out of the market. Only one other species is grown by the thousand—namely, the yellow stemmed, free and graceful Areca lutescens. A few others are seen in lesser numbers, but those named are in the greatest demand and are grown accordingly. In no continental establishment can Palm-growing be seen to better advantage than in this, and the famed Belgian growers must look out, or, to quote a remark of a travelled horticulturist, "Bause will beat them." His plants ranging from the smallest seedlings to specimens of about 3 feet high, some larger, are in the best of health and colour, stout in texture, and clean.

Upwards of a hundred varieties of Crotons are grown, these plants

when well coloured in a small state meeting with a good sale in "the market," the names of varieties not being a matter of great importance there. A collection such as this, however, affords an opportunity of noting half a dozen of the more distinct and effective varieties. There are *superbus* (Kerr), narrow leaved, colour sulphur yellow, bright and elegant; *Neumanni* (Kerr), broad leaved, highly coloured, indeed almost a "crimson self"; *Flambeau* (Kerr), narrow leaved, crimson, very rich; *Sunshine* (Williams), medium as to leaf growth, and a combination of crimson, red and yellow in colour; *Mortefontaineensis* (Chantrier), trilobed and very rich in colour; *Emperor Alexander* (Chantrier), broad leaved, after the character of *Evansianus*, and a fine addition. Those are all distinct and good varieties, and if a dwarf one of great transparency is desired it is found in *Veitch's Hawkeri*. This is a very short list from a collection numbering a few thousands of plants.

Good progress is being made with *Nepenthes*—*Mastersiana*, *Northiana* and *sanguinea* being in admirable condition, *Rajah* and *sineta* being also included, but smaller; and a stock is being worked up of *Ficus elastica variegata*, which is expected will become a favourite in the market and for general decorative purposes; its variegation appears to be constant and decided. It is wonderful to see what can be accomplished by the combined force of good judgment, skill, and diligence in business, and Mr. F. Bause's work certainly merits recognition.—A TRAVELLER.

LETTUCES FROM DECEMBER TO MAY.

I SHOULD be very glad if you could tell me in the *Journal* the best way to grow *Cos* Lettuces to cut from December to May. If a heated pit is necessary would you kindly tell me what kind of structure would be most suitable, and which variety of *Cos* to grow? A little expense would not be objected to.—A. B. C.

[A gardener of great experience in growing and forcing vegetables favours us with the following notes on the subject in question:—

"It is a matter of no small difficulty to have Lettuces, and especially *Cos*, fit to cut from December to May. The difficulty is climatic, but may be overcome by skill and appliances. Heated structures are essential. Those we have used were ordinary pits 6 feet 6 inches wide, with a row of 4-inch pipes along the front and at the back, the top four courses of the brickwork being 4½ inches built in cement, which forms a ledge inside on which the hot-water pipes are placed, and the height of the ledge is the level of the soil, so that the plants or soil is about 18 inches from the glass. A depth of 18 inches below the ledge is sufficient for drainage and soil. About 9 inches depth of rubble is placed in for drainage, secured with a thin layer of turves grass side downwards, or the rougher parts of the compost, which consists of good garden soil or loam three parts, leaf soil one part, well decayed manure one part, and one part in equal proportions of old mortar rubbish and charcoal, the whole well incorporated, adding a bushel of soot to every thirty of compost. The whole is prepared and ready for sowing by the third week in July. About the 20th of that month the seed is sown in drills 15 inches apart—i.e., the *Cos* varieties; but we take a row of a small *Cabbage* variety between the rows for early cutting. The plants are thinned in the first instance to 3 inches, and finally to 9 inches in the rows, but the *Cabbage* sorts to 6 inches. They are duly attended to with water, keeping them free from weeds, and stirring the soil about the plants, dusting with quicklime if slugs or worms are troublesome. The lights are not used, but they are held in readiness from early October for employment in case heavy and prolonged rains, frost or snow prevailing, the lights being tilted back and front in mild but wet weather, so as to insure a circulation of air, and when frost prevails they are closed during its prevalence. Whenever the weather is fair and mild the lights are withdrawn, and the sun is not allowed to act on the pits so as to raise the temperature without air being given; in fact, the lights are withdrawn or air given whenever the external temperature is 50°. By November, if all has gone well, the plants will be strong, the *Cabbage* fit to cut, having hearts not unlike a tennis ball, and are esteemed whole, halved or quartered; the *Cos* will be fit to tie—i.e., the largest plants, this requiring to be attended to in order to secure the needful blanching.

"During the winter the heat is turned on to insure a night temperature of 45° to 50°, and the latter by day, always with a little ventilation except during very severe frost, the chief thing to guard against being a stagnant atmosphere, losing no opportunity of exposing the plants fully to atmospheric influences. The next evil is too moist a condition of the soil. Moisture is essential to healthy growth, but when water or liquid manure is given it should be in the morning when there is a prospect of a fine day, and as a safeguard against damp rising, mulching between the rows with charcoal, or straw cut into rough chaff is useful. The further conditions are an open but sheltered situation, a drip-proof roof or lights, and a firm soil, it being well trodden before sowing, so as to insure sturdy plants; but the surface must be loose, or made so by light stirring. In order to obtain a supply several pits will be necessary to follow each other, frost only being excluded until the plants are wanted to make the needful growth for blanching, or about a fortnight before required for use. For early spring use sow about the 10th of August and grow in cold pits, employing protection in severe weather. The finest Lettuces we have had in winter were grown in *Melon* pits emptied in October and filled with leaves in November, trodden hard and covered with 6 inches of good loam, in which plants were placed with balls of roots from the July sowing. They were kept active at the

roots and in steady progressive growth with very little aid from fire heat; indeed, it was only given to exclude frost, or in dull weather to insure a circulation of air. The *Cabbage* variety grown was *Commodore Nutt*, of the *Tom Thumb* or *Tennis Ball* section; but *Early Paris Market* was excellent, and it is likely *Veitch's Golden Queen* will supersede all others of this section, it being a little except heart, the thing wanted in a *Lettuce*. Of the *Cos* varieties, *Bath* or *Brown Sugarloaf* and *Hick's Hardy White Cos*. Both are superb."]

ILICIIUM FLORIDANUM.

THE "Florida Aniseed Tree," as this *Illicium* is popularly known in the Southern States of North America, is an evergreen shrub rarely exceeding the height of 6 feet, and as seen in this country usually much smaller. The leaves are lanceolate in form, smooth, and shining green, becoming a deep red colour as they fade. The flowers have a strong aromatic odour, resembling aniseed, and are composed of a great number of radiating, slightly recurving, dark reddish crimson flowers



Fig. 81.—*Illicium floridanum*.

borne singly near the points of the shoots. In the south of England it succeeds well out of doors, but elsewhere it is generally grown in pots or planted out in cool conservatories. It requires a compost of peat and light loam, with abundant supplies of water, as it is a moisture-loving plant and is found in swampy districts in a wild state.

MELON SUPPORTS.

How many and varied are the contrivances for supporting the fruit on house-grown *Melons*, nearly every cultivator having his own pet style, which it is no easy matter to alter. In reality, half the labour and ingenuity expended in this direction is totally uncalled for, and

very many of the supports are ugly, quite disfiguring a well grown crop of fruit. If there was any necessity to support the Melons at any time, say up to the time they are ripe, there would be some excuse for the practice. As it happens, the plants are capable of bearing the heaviest fruit grown, always providing the baulm immediately over the fruit is fastened with a stout piece of raffia to the wires overhead. It is by no means an uncommon practice to support the fruit when no larger than an Orange, some being slung up in baskets, some in nets, others on boards, and a few in saucers with perforated bottoms, made for this especial purpose. Many are content to support them with a network of raffia, while occasionally string only is used. Any and all of these contrivances, if used before the fruit are fully grown, are liable to disfigure the fruit, either as regards form or appearance.

Those who wish their Melons to be perfect in shape and beautifully netted ought not to hamper them in any way. If the embryo fruit are well formed and properly set in the first instance, and allowed to hang naturally from the plant, they are almost certain to be of good shape. Whether they will be large and well netted, however, is principally determined by the quantity of fruit each plant is allowed to swell off, and it may not be out of place to repeat what others before me have pointed out—viz., that when Melons are overcropped the quality of the fruit is greatly deteriorated thereby. We are apt to overlook the fact that any kind of fruit tree or Vine is quite capable of bearing the weight of the fruit produced, at any rate as far as the footstalk is concerned; but if we sling up the fruit when quite young the tendons cease to strengthen. Exercise and use develop the muscles and tendons in both the members of the animal and vegetable kingdom, and it is good for neither animal nor fruit to be always riding. Let the Melons bear their own weight, and cut them when they are ripe. About the middle of May we commenced cutting Melons, and although several of them weighed 3 lbs., or rather more, not one of them fell. They would have fallen, doubtless, if we had left them on the plant long enough; but I hold it is quite possible to leave a fruit too long on a plant. Cut it when well coloured and commencing to crack round the footstalk, leave it on a shelf in the same house for a few hours, and then keep it in a cool room till wanted. Those sorts given to premature cracking, and which include Victory of Bath, Eastnor Castle, and Longleaf Perfection, very frequently have to be cut before they are coloured, but they ripen thoroughly on a shelf in a forcing house. I have tasted numerous fruit thus cut and ripened, and many of them were of excellent quality, quite equal to taking prizes at large flower shows, in fact. This season we supplied the Melons for a Royal dinner party, and were praised for them. They were "very good," yet never receive any supports.

Very few will be tempted to risk losing a few fruits owing to no supports being affixed, but if they will not discontinue supports they ought to defer supporting them till near the time of ripening, and then little or no harm will result. All that is needed is a few short lengths of medium-sized strings. With one piece form a loop so as to fit closely round the fruit slightly below the thickest part, and leave one long end; attach two other pieces to this loop at equal distances apart, and tie all three ends to the wires overhead. This simple support is strong enough for the heaviest fruit grown, but we do think it advisable for them to actually bear the weight of the fruit, their purpose being to prevent the fruit from dropping. Strips of raffia may be used instead of string, but the latter is more easily tied, and is also much the strongest.—W. IGGULDEN.

NOTABLE TREES AT WHITTINGHAME, PRESTONKIRK, N.B.

WHITTINGHAME, as hinted at page 305, is situate amidst a wealth of charming woodland scenery, about three miles south-east from Prestonkirk and the East Linton station of the Great Northern main line of railway, and a like distance in an opposite direction from the fishing town of Dunbar and its historical castle, now, like many others of the thirteenth century, in ruins. As I am not going to write a description of Whittinghame and its extensive and well-kept gardens, but simply to give the dimensions of a few of the choice trees which abound in the grounds, I may say at once that everything, both indoors and out, go to show that Mr. John Garrett is a good all-round practitioner. Close by the old Castle (which is situate at the top of the charming grounds facing the present commodious and handsome Grecian mansion) is a remarkable and most interesting Yew tree—remarkable alike for its great age and size—the circumference of the trunk being 10 feet 6 inches, diameter of space inside where the branches rest on the green sward 35 feet, outside spread of branches close upon 100 yards in circumference, and interesting from the fact that underneath the spreading branches of this venerable tree Bothwell and other Scottish nobles opposed to Darnley, are said to have concocted a plot to assassinate him. Of *Araucaria imbricata* there are trees from 16 feet to 31 feet high, and furnished from the ground with luxuriant branches; two bore cones from which a quantity of good seed was saved a year or two since. *Abies Douglasii*, spread of branches 48 yards in circumference, and girth of trunk 7 feet 9 inches; *Picea cephalonica*, 50 feet high, circumference of branches 34 yards; *Thuja p. borealis*, a handsome specimen, 25 feet high; *Wellingtonia gigantea*, trunk 11 feet in circumference, and about 51 feet high; *Picea Pinsapo*, 46 feet in height, a finely proportioned tree; *P. nobilis*, 71 feet high, stem 6½ feet

round; *P. pindrow*, 41 feet high; *P. Nordmanniana*, 71 feet high, stem 6½ feet round; *P. Morinda*, 41 feet high; *P. Webbiana*, 46 feet high; *Pinus exelsa*, 41 feet high, as also is a handsome specimen of *P. Cembra*; *Picea nobilis glauca*, 31 feet in height; *Fitzroya patagonica*, 21 feet high; *Taxodium sempervirens*, 51 feet high; *Cupressus Lawsoniana*, 31 feet high, and, like the other trees mentioned, of proportioned dimensions; *Cryptomeria japonica*, 41 feet. There are several standard Portugal Laurels, having clean stems mostly 6 feet in girth, and heads from 20 yards to 28 yards in circumference, truly grand specimens; and in the flower garden there is a very fine silver variegated Holly, 27 feet high and 33 yards in circumference.

Last but not least, mention must be made of a large specimen *Eucalyptus*, having a trunk 10½ feet round, main limb 5 feet, others two 3 feet 8 inches, and others of smaller dimensions, height 61 feet. Hitherto Mr. Garrett, the able gardener, had thought the species to have been *E. viminalis*, it having been so named by the late Professor Balfour; but Sir Joseph Hooker, to whom Mr. Garrett lately sent a branch, recognised it as one which he had himself gathered on the mountains of Tasmania, called *E. Gunnii*, or Cider Tree. The natives make use of the fermented juice as a potable beverage. The soil at Whittinghame overlies the old red sandstone formation, the subsoil being mostly of sand or gravel; the atmosphere is consequently dry, and to this fact Mr. Garrett, naturally enough, attributes his immunity from severe frost, as he finds a given amount of frost does not do the same amount of damage as it does in the low-lying districts, where the air is more moist. The elevation of Whittinghame, which is about three miles westward of the German Ocean, is about 320 feet above sea level. It would be interesting to know whether there is any larger specimen of the *Eucalyptus Gunnii* growing in Great Britain or Ireland than the one indicated above.—H. W. WARD, *Longford Castle*.

NOTES ON BUSH FRUITS.

RASPBERRIES.—These are perhaps more liable to suffer from lack of moisture than from any other cause. They like a soil therefore which contains a permanency, without stagnation. They will, for the above reason, succeed pretty well in a half-shaded situation; but the fruit never attains that high flavour so much esteemed in the Raspberry. We have some highly improved kinds of the Raspberry at present in cultivation. Fastolf continues in bearing long after the other kinds; appearing to partake in some degree of the double-bearing. Those who desire Raspberries through the end of the summer should prune some of the canes back to later eyes, or buds, after the bushes have sprouted an inch or two. This forces them to sprout lower down the stem. Of course, later Raspberries like liberal manurings; indeed they should have a little annually, and no digging over the roots should be permitted.

GOOSEBERRIES.—Amongst all the bush fruits this delights most in an open, free, and generous soil—one rather dark in colour seems to suit it best. The Red and White Currant like a similar soil; but, if too generous, they will produce too much watery wood. It is, however, difficult to make the soil too good for Gooseberries with any reasonable amount of manurial matters. Many good gardeners pack about half a barrowful round the stem of each bearing bush every winter. This washes down in nutrition to the roots, and keeps them damp in dry and hot periods. Little summer pruning is needed for the Gooseberry—just enough to keep the boughs from dangling too low and becoming splashed. For this purpose the ordinary shears may be used, only removing any portion of the points which are disposed to touch the soil.

BLACK CURRANTS.—These love a moist soil: drought, especially when they are in blossom, or swelling, is almost sure to engender aphides. For this reason, cottagers in country places are in the habit of packing damp manure round their stems, in order to retain the moisture, as well as to encourage surface fibres. In dry periods, during the end of May and first week in June, those who suspect any drought at the root should give their bushes a thorough soaking of water; if soapsuds are mixed with it all the better: this will generally secure a good crop and avert the attacks of the fly. Here I must protest against the use of the spade. I do not allow it to come within 3 feet of my bushes. Summer pruning is not needed with the Black Currant; unless it be a few of the lower shoots, bending with their weight and touching the ground. If, however, any of the young points grow to an inconvenient height, they may be pinched or cut back any time during this month, leaving a few of the lower leaves.

RED CURRANTS.—The Reds are much coarser-growing bushes than the Whites, and do not require so much manure; indeed, where they make coarse breastwood, manure is out of the question; whereas it is not easy to over-manure the Whites. Both Red and White Currants delight in a free and open soil, and will endure drought much better than the Black Currant. They are apt to produce an inconvenient amount of breast shoots, which rob the fruit considerably; and here is a case where summer pruning is of much service. This is performed when the breast shoots are about 9 inches in length; they may be shortened to 3 inches, which is necessary to protect them from intense sunlight; for if it shines much immediately on the berries before the colouring period they will lose size as well as juiciness. But the tre-

minal points also are apt to lengthen inconveniently; these may be shortened when from 8 inches to a foot in length.

These proceedings will throw much strength into the berry, which is most desirable. It is of no use suffering young growing spray to any indefinite extent, it is but adding more woolly matter; whereas the prime object should be to throw as much into the fruit as possible. As for weak growth, that merely points to the need of manure, and may be amended by surface dressings, or by digging out a trench around them and introducing manurial matters.

Amongst the chief recommendations I have to offer, let me urge that there be no surface digging at any period nearer than 3 feet from the bole of the tree; there is more harm done with the spade than by any other means. It is the same, indeed, with most other fruit trees.

WHITE CURRANTS.—These like a light and rich soil, and require it to be generous. They should by all means have a surface dressing—only a little—every winter if fine fruit is desired. They require less shortening than the Red, and seldom much summer pruning of the breast shoots. It is astonishing what a weight of fruit a White Currant bush will produce if of a good variety and properly handled.

I may now offer a few miscellaneous remarks and suggestions. In the first place, as to insects. A paper has appeared on this subject a number or two back as regards the Gooseberry. Currants are chiefly liable to the aphid, and a troublesome enemy it is, having the power of distorting the foliage to an immense extent, in fact, forming thereby a place of retreat that almost bids us defiance. The only plan is to attack them whilst young with tobacco water before the foliage collapses. Many, however, may be removed in the summer pruning, for all gardeners have not labourers enough to meet the increasing exigencies of later years; and this, more by far than the want of knowledge, is the cause of many of the evils that we still find besetting the fruit gardener. The aphid is the most powerful enemy of the Black Currant, and may be attacked similarly, but preventives go a long way, as before observed. Thorough waterings, about a couple of times, the last week in May and the middle of June, will effect wonders. Black Currants will endure almost any amount of moisture.

The retarding of bush fruit is a point too little noticed or attended to, and this chiefly through the pressure of other matters at the period proper to attend to them. Gooseberries, Red and White Currants, Raspberries, &c., look exceedingly ornamental when trained on trellises, providing they can at all times be kept in trim. If, however, they cannot be properly attended to, such had better be omitted. On perpendicular rails, too, they are very easily protected, or shaded when requisite; and this is a consideration as to both earliness and lateness, as well as to birds. Trellises of strained wire are cheaply knocked up nowadays, and may be admirably adapted to their habits. Further, with regard to pruning in the rest season, I may observe that a too sparing hand is the common fault. Gooseberries, especially, require more thinning than is commonly awarded them. The interior shoots of the bush in healthy trees should be almost entirely pruned away, and the bearing confined chiefly to the extreme points. They are thus gathered with more ease; indeed, the bushes may be stripped in half the time of those choked up in the interior. The fruit, also, is much finer, and the crop will be found to tell amazingly in bulk. As for the Red and White Currants, their side spray—if other points of management be right—may be all pruned close to within half an inch of the main stem. There is thus less summer spray to prune back, and the fruit is in consequence much larger. Those who grow for exhibition purposes may use liquid manure occasionally during the swelling process, as also just before the fruit begins to colour. This will much increase the size and improve the general appearance.—N. E. R.

SOUTH ESSEX HORTICULTURAL SOCIETY.

JUNE 9TH.

THE revival of this Exhibition was satisfactory to many horticulturists in the district and elsewhere, and it is regrettable that through some unfortunate dissension no show was held last year. We have witnessed a number of this Society's gatherings, and they have long been noticeable for the freshness and good culture of the plants shown. Competition has also generally been keen, a wholesome spirit of rivalry prevailing amongst the local gardeners. Unquestionably the Society has been greatly assisted by their President, J. G. Barclay, Esq., Knotts Green, Leyton, who has annually provided a site for the Exhibition in the grounds adjoining his residence, and has also thrown open the gardens, conservatory, and fernery to all visitors. The Shows have been enriched with the fine specimen plants grown by Mr. Donald, the gardener at Knotts Green, who has been one of the most prominent prizetakers for a number of years in succession. It is seldom that a Society obtains so much substantial support from its President as this one does.

The Show this year was an exceptionally good one as regards the number and quality of the exhibits, but they were not well arranged—insufficient tent space had been provided—and in consequence the effect produced was not nearly so satisfactory as it would have been under a better system of management. Some of the exhibitors also were very late in staging their plants, and the method of affixing the prize cards was one of the most clumsy that could be employed. A card bearing the class number and exhibitor's name was inserted in the top of a cleft stick, and then a large prize card was inserted over this as the awards were made, effectually concealing the names of the winners. This might be easily remedied by making another cleft in the stick lower down, having another stick, or even by placing the cards on the exhibits where they could be conveniently seen. Attention to little details of this kind renders an exhibition far more satisfactory to all concerned.

The Orchids constituted the chief feature of the Show, and we have

never seen so large and good a display at a local exhibition of this character. The plants were mostly small or of medium size, but they were mostly distinguished by their healthy condition, their number of flowers, and the excellence of the varieties. For a group of Orchids Mr. W. May, gardener to F. C. Jacobbe, Esq., 11, Anlurst Park, Stamford Hill, won the chief place with a capital selection of *Odontoglossums* *crispum* *cordatum*, *Kienastianum*, *citrosum*, and *rexillarium*, represented by excellent varieties. *Cattleya Mossiae* was very fine, *Cypripedium Veitchii*, *C. barbatum* *superbum*, and *Masdevallias* *Lindeni* and *igneae* very richly coloured. These were tastefully arranged with small Ferns. Mr. J. Gilks, gardener to A. Borwick, Esq., Higham Hill, followed with a more varied collection but scarcely such fine varieties; *Laelia purpurata*, *Cattleya Mendeli*, *Adanantiaca*, *Odontoglossums*, *Masdevallias*, *Lycastes*, *Dendrobiums* were well represented, and were disposed to the best advantage with elegant foliage plants in a compact group. Mr. Ebbage, gardener to W. Houghton Esq., Walthamstow, was third, his principal plants being *Epidendrum vitellinum*, *Dendrobium*, *Masdevallias*, *Cypripediums*, and *Anguloa Clowesi*. For eight Orchids Mr. May was again victorious, showing handsome plants of *Thunia Marshalli* with six racemes of six and eight flowers each, *Cattleya Mendeli*, *C. Mossiae*, *Anguloa Ruckeri* with three flowers, *Dendrobium thyrsiflorum* with seven racemes, the richly spotted valuable *Odontoglossum Jacobbianum*, *O. crispum*, and *Laelia purpurata Williamsi*. Mr. Gilks was second with *Oncidium macranthum* having fourteen fine flowers, *Laelia purpurata* ten flowers, *Lycaste Skinneri* sixteen flowers, *Cymbidium eburneum*, *Odontoglossum vexillarium*, *Zygopetalum crinitum* five racemes, or a total of twenty-seven flowers, and *Masdevallia Lindeni*. Mr. Ebbage was third for *Cypripedium Robelii* five flowers, *Lycaste Deppei* ten flowers, *Aerides Fieldingi* three racemes, *Laelia purpurata* thirteen flowers, *Maxillaria tennifolia* with some scores of its small bright flowers, *Epidendrum vitellinum* majus twelve spikes, and *Cattleya Mossiae* fourteen flowers. An extra prize was awarded to Mr. R. Drummond, gardener to J. McLean, Esq., his best plant being an admirable specimen of *Brassavola Digbyana* with large flowers and deeply fringed lips.

There were also three exhibits of four Orchids, the prizes being secured in this order by Mr. T. Foster, gardener to R. Johnson, Esq., Walthamstow; Mr. W. Davey, gardener to C. C. Paine, Esq., Stamford Hill; and Mr. Donald, gardener to J. G. Barclay, Esq. In the first the plants were *Dendrobium calceolus*, *Odontoglossum crispum*, *Cypripedium barbatum*, and *Cattleya Mossiae*. Mr. Davey had good plants of *Cypripedium Laurenceanum*, *Cattleya Mossiae*, and *Odontoglossum vexillarium*; Mr. Donald's best specimens being *Aerides odoratum*, *Cattleya Mossiae*, and *Odontoglossum vexillarium*. For single specimens Mr. Gilks won first honours with a beautiful plant of *Laelia purpurata Russelliana* having eight flowers, Mr. Ebbage was second with a good variety of *Laelia purpurata* having seven flowers, and Mr. May third with *Cattleya Mossiae*. There was also a class for amateurs who do not employ a gardener, and three trios of neat plants were shown. It is evident that with a little more encouragement in the shape of larger money prizes the Society might render their Exhibition famous for its display of Orchids; as it was, one side of the large tent was filled with them, and Messrs. Low & Co., Clapton, also had a large non-competing group of choice Orchids in another tent.

In the stove and greenhouse plant classes and those for miscellaneous plants Mr. Donald was the chief exhibitor, his specimens being in excellent condition, and such as would have commanded attention in any exhibition. For eight stove and greenhouse plants he was first with large, evenly trained globular specimens of *Genethyllis tulipifera*, *Dracophyllum gracile*, *Bougainvillea glabra*, *Boronia pinnata*, *Erica Cavendishiana*, *Genethyllis fuchsoides*, *Clerodendron Balfourianum*, and a variety of *Azalea indica*. He won the premier prize for four Heaths with *Brias Candolleana*, *tricolor Kingscotti*, *semula*, and *tricolor Paxtoni*; for six fine-foliage plants with *Theophrasta imperialis*, *Croton majesticens*, *Dracenas Lindeni* and *Baptisti* very fine, *Dasylium acrotrichum*, and *Croton Disraeli*; also with four Azaleas and six exotic Ferns, besides securing honours in some minor classes. Most of the exhibitors already named competed in other classes, but owing to the peculiar manner of affixing the cards already noticed we were unable to obtain the names of these in many classes. Some of the principal prizewinners were Mr. Tween, gardener to T. J. Morgan, Esq.; Mr. Drummond, gardener to D. McLean, Esq.; Mr. Davey; Mr. C. Boakes, gardener to Capt. Gibbs, Upper Clapton; Mr. Gilks, Mr. Fisher, and Mr. Barton. Ferns, Palms, Calceolarias, Pelargoniums, Gloxinias, Begonias, and Cockscombs were represented by good plants. Cut flowers, buttonholes, and stands of flowers were tasteful, but not quite so numerous as on former occasions.

Fruit was not largely shown, black Grapes being the best, Mr. A. Smith, gardener to W. H. Sewell, Esq., Loughton, having well-coloured compact bunches of Black Hamburg. He was also first with white Grapes—Foster's Seedling, but it was a little too early for them. Messrs. Donald and Rann followed in the former class. Mr. G. Boakes had the best Tomatoes; Messrs. F. and J. Gilks the best Strawberries, these two exhibitors being respectively first and second in the order named for collections of six vegetables; Mr. Donald having the best collection of six vegetables, all capital samples.

Mr. B. S. Williams, Upper Holloway, had a large handsome group of Orchids, stove and greenhouse plants. Mr. T. S. Ware, Tottenham, contributed a choice collection of hardy flowers. Mr. W. J. Short, Grove Road Nursery, Walthamstow, had a pretty group of Orchids and small flowering plants. Messrs. Wood & Son, Wood Green, had a stand of special manures, peat and loam samples, and their duplex insecticide distributor, which the *Julges* specially commended; and Mr. W. Colchester, Ipswich, had samples of the ichtheal guano, superphosphates, crushed bones, and similar substances.

GLOXINIAS AT THE READING NURSERIES.

MESSRS. SUTTON & SONS have three establishments in Reading, first their great and marvellous seed warehouses and offices in the centre of the town, then their extensive seed trial grounds in the neighbourhood of the town, and finally the nursery at Portland Road. An inspection of all these could not well be made in one day, for the trial

ground it is almost too early in the season, and the offices are so well and widely known that they do not need description, but in the nursery something fresh is found at all times, and there is always some important feature of interest to horticulturists. Early in the year the Primulas and Cyclamens were extremely fine, and visitors to the metropolitan meetings had an opportunity of seeing the extraordinary exhibition of the former, which gained so many honours at South Kensington. Following these came the Calceolarias, which have afforded a brilliant display for some time, but are now nearly over, the strong healthy plants bearing a fine crop of seed. Now the Gloxinias constitute the feature, and shortly the Tuberous Begonias which have received so much attention from this firm will take up the succession, and then there will be a host of outdoor attractions to interest the visitor. It is especially pleasing to observe the methodical exactness with which the work is conducted, and the careful thought displayed in all the arrangements, the scrupulous cleanliness, and the excellent culture afforded all the plants taken in hand, whether flowers, fruits, or vegetables, tender or hardy, annual or perennial. A record of the improvements effected here in several classes of popular plants, and the mode by which they were accomplished, would constitute an interesting and important work, and would prove conclusively that success in such work does not come by chance, but by keen observation, repeated experiments, and patient waiting for results.

The Gloxinias deserve a special paragraph or two in these notes, for these plants are valued greatly at this time of year; they possess a peculiar richness of colouring in their substantial, handsome flowers, that must always render them favourites with plant growers, and if there ever has been an idea that they are difficult to grow, such fancies have been completely dissipated long since. The fact is, wherever the heat of a stove can be commanded an abundant supply of plants can be easily had, and a succession of flowers for several months. Nor is it necessary to wait so long for the flowers as was once supposed. Six or seven months suffices for the production of strong flowering plants, and examples of this can be seen in Messrs. Sutton & Sons' nursery now, for vigorous young plants raised from seed in January this year are showing flowers freely. For seed-bearing purposes, and that, of course, is the chief object at this nursery, they are retained another season; thus the greater portion of the display now provided is produced by plants raised from seed in the previous January. Thus they are now eighteen months old, most vigorous specimens, with leaves a foot or more in length, 8 or 9 inches in diameter, completely concealing the pots, and bearing from twelve to forty grand flowers. Such plants can bear and mature a larger number of large well-filled seed pods, the seeds proportionately well nourished, heavy, and matured, the chief secrets of after success as far as the seedsman is concerned.

An astonishing variety of colours, spotting and marking, distinguishes this strain. They are nearly all of the erect flowered type, but a few of the drooping flowered sorts are in demand for suspending in houses, &c.; and these are retained for that purpose, but it is in the others that we have the richest colours and the grandest flowers. Some of these are purple, violet purple, blue purple, and purplish crimson in intense shades, becoming lighter in throat and towards the margin. The crimsons range from the purples to the brightest scarlet, one of the latter with a white tube being very brilliant. Then there are some with clearly defined white margins and variously tinted centres and tubes. Another beautiful group is that containing the spotted forms, which are most diverse, delicate, and beautiful, and gradually shade off to pure white. Two types of the last named have been formed by Messrs. Sutton, one with a long tube and the other with a shorter more bell-like flower of great substance, both very pure and capital for decorative purposes. On one plant of the former white variety we counted forty flowers, the plant being eighteen months old, and several others were but little inferior to this.

Where such good results are obtained we might be sure that an excellent system of culture is pursued, and this cannot be better described than in Messrs. Sutton's own words in their useful work on "The Culture of Vegetables and Flowers."

"By judicious management it is possible to have Gloxinias in bloom the year through. Those who care for a display at Christmas can have it from seed sown in June, and a further sowing in January or February should produce plants to flower successively in almost every month of the year. The soil most suited to Gloxinias is a light porous compost of fibrous loam (or, if that is not obtainable, leaf mould will answer), mixed with peat and silver sand in about equal parts. New pots are advisable, or old ones must be thoroughly cleansed, and free drainage is essential to success. Fill with soil to within half an inch of the top. Sow thinly, and slightly cover the seed with very fine earth. Place the pots in a warm, moist position, carefully shading from the sun. A light sprinkling of water daily will be necessary. Immediately some plants are large enough for shifting lift them from the seed pot by the aid of a pointed stick, so as least to disturb the rest, and prick off into large 60-pots in which the soil has a convex surface. Follow this process as plants are ready until all the seedlings have been transferred. When potting allow the leaves to rest on the soil, but avoid covering the hearts. On the first warm day give air on the leeward side of the house, briefly at first, and increase the time as the flowering period approaches. A clear space between each plant is necessary to prevent the leaves of neighbours from meeting. The final shift should be into 48-pots, unless extra fine specimens are required, and then one or two sizes larger may be used. An occasional dose of weak manure water will prove beneficial, taking care that the foliage is not wetted. A moist atmosphere,

with the temperature at about 60° or 65°, greatly facilitates the growth of Gloxinias. With care, however, they may be well grown in either greenhouse or pits heated by hot water. But although the plants love a humid atmosphere while growing this ceases to be an advantage, and, in fact, becomes positively injurious when the flowers begin to expand. At that time, also, the liquid manure should be discontinued."

To the other specialties we can only casually refer now, as they will be worth reverting to at a later period. An interesting series of Cucumber trials has been undertaken, about thirty varieties or strains being tested in one house. Melons are to have a similar testing this season. Out of doors a large number of Tomatoes are again planted out for trial, while a splendid stock of seedling Hollyhocks are growing vigorously and cleanly. Early in the spring a good mulching was given over the roots, and the plants are now starting away most strongly. In preparation for the Royal Counties Agricultural Show this month are a number of boxes of lawn grass seedlings, as level and dense as green velvet, though only sown a month or six weeks. This Show takes place in the "Jubilee" week, and it will be an uncommonly busy time for Reading if the weather is favourable.—X.

FLORAL BOUQUETS.

IN an account of the Queen's Drawing Room the other day, reference was made, says the *Daily News*, to a new style of bouquet introduced recently by a West-end house. "Which was the West-end house referred to?" was the question put to several florists at the West end of town. With one accord they all answered "This is it." The Covent Garden florists do not come within the designation of West-end houses. As they were clearly out of it, they were satisfied with denying that any house had recently introduced what it appears is known as the posy style of bouquet. It is at least two or three years old, say they, and indeed it would not be very reckless to assert that the style must be pretty nearly as old as the flowers. The "posy," as it is now understood, is a bunch of flowers all of one kind, as no doubt it was when every flower had its significance, and it was the fashion in presenting a bouquet to present a copy of verses with it. The blossoms are all of a kind, and they are so disposed as to display the natural characteristics of each flower individually. The fashionable "posy," therefore, is a mere fling back to nature from the elaborate artificiality of the modern bouquet, which crowds all sorts of blossoms into a closely-packed bunch of symmetrical form. "We get flowers specially cut for posies," said one Covent Garden florist. "These Carnations, for instance—for bouquets we want nothing but the blossoms. We can do better without any stalks. A bit of wire is more convenient. It allows the blossom to be more readily adjusted, and as in a close bouquet the stalk is not seen it is of no consequence. In a posy it has to be shown, and blossoms without stalks are of no use. The stem of the flower has, however, to be wired in order to keep it in position."

"Any kind of bouquet factory? Well no," continued the same authority. "We haven't, or anybody else that I know. We have about a dozen hands regularly employed during the busiest of the summer; but there is nobody makes up bouquets on a very large scale. It is a very extensive business, no doubt; but it is a very local sort of thing, and is necessarily carried on at a good many centres. Florists in the provincial towns mostly make up for themselves, because you see they are bound to have their flowers fresh. The trade in dried flowers is different, of course; but that is mainly confined to memorial wreaths and that kind of thing. They are not used for bouquets or posies. Nothing will do for them but fresh flowers, and in whatever style they are done up they are all done by girls or women. Special training? No; nothing particular. We bring them right along from the beginning. We set them in the first place to wiring the flowers—putting the wire stalks to them, that is—and by degrees they pick up the knack of putting them together. Some, of course, turn out more deft and tasty than others, to them we entrust the more important bouquets." "Yes," said our Covent Garden tradesman, "of course we do posies when they are asked for, and in fact we do a good many of them, and we can do floral lyres and harps and that kind of thing as they are doing up the West-end. Nothing is easier; but after all it's rather a stupid idea. For the next three months," he continued, "we ought to be very busy, and no doubt balls and drawing rooms and Jubilee festivities of all sorts will make things more than usually brisk."

The trade generally seems to be anticipating great things this summer, and indeed have already been at high pressure. The backwardness of the season exerts no appreciable influence whatever on the fashionable flower business. Everything is now grown under glass, and, whatever the temperature of the open air may be, Roses and Lilies, Mignonettes and Bouvardias, Cloves and Lilacs are always to be had for the ordering. This Whitsuntide they are certainly in immense profusion, and open posies, though not exactly new, appear to be a special feature of the season. At the "Wild West" the other day the Queen had presented to her one composed exclusively of white Orchids. Nothing could be more beautiful than this, except, perhaps, a delicious bunch of Roses such as were to be seen in the hands of some of the ladies at the Botanical Gardens last week, arranged in "posy" style. This new departure in the character of bouquets has found favour no doubt from two causes chiefly. The real beauty of the "posy" consists in the fact that it is a nearer approach to the ideal beauty of Nature than that of the formal bouquet. That is one cause of its favour, and the other is that a bunch of flowers all of one kind may be made more effectively to contribute to the beauty of a dress than one comprising all sorts of

colours. Florists nowadays have to study carefully the vagaries of fashionable colours, and to bring all their resources to the production of flowers that will harmonise with the newest effects of the eastumier. Mere rarity or costliness is a matter of no consideration, and a posy of simple Mignonette, or Heliotrope, or a few Rose buds, may now often be seen where not a great while ago nothing but the choicest of exotics would have served. Effect is everything in these "aesthetic" times of ours, and ostentation is apt to take the form of ostentatious simplicity. Rose buds and green Wheat ears constituted the posy which attracted as much admiration as anything at the Royal Botanic Gardens flower show the other day.

While, however, there is this tendency in the direction of simplicity on the one hand, certain establishments in the West-end have been lately making display of that intricate and elaborate kind more familiar to the Parisians. These establishments are, in fact, in the hands of Frenchmen. "We claim for ourselves," said one of their number a day or two ago, "that we can give you effects which English florists do not know how to produce. We use half the flowers, and give double the effect, and all we want is to win the attention of competent judges. But it is very difficult in London," said the speaker, rather despondently. "Do you consider, then, that Londoners are less capable of appreciating the artistic treatment of flowers than the Parisians?" "No, certainly not, but they ride past my shop in their carriages, and they do not look at what I show. On the Boulevards of Paris, or Unter-den-Linden in Berlin, or the Broadway of New York, they would walk, and if we showed anything fine they would stop and look. But in London they ride by and you cannot get attention, however beautiful may be the things you have to show." One of the most notable of the productions of this firm lately was a design for the tomb of the late Duchess of Norfolk, consisting of a representation of the gates of heaven standing ajar for the departed soul, executed entirely in flowers, embedded in wet moss, a carpet of moss outside the gates presenting a quotation from some hymn inscribed in Violets. The same firm has lately been fashioning lyres, urns, vases, crucifixes, fans, and other objects wholly in flowers, after a manner not before known to other houses, but much more familiar to the flower market. The construction of any object in flowers is, of course, a very simple matter, and not perhaps particularly admirable as art. To make a vase in wickerwork or other material, sheath it in wet moss, and wire upon it a uniform covering of Wallflowers or Bluebells, is not in itself very clever, nor is there anything natural or pretty in such a use of flowers, all the individual beauty of which is of course entirely lost. Such an object may be curious enough, and if the blossoms be scented while they are fresh they may be a pleasant decoration for a drawing-room or a dinner-table. But it is in the use of these floral vases and lyres and other objects as foils for artistic grouping of other flowers that the scope for a highly cultivated taste is found, and some of the objects lately presented in this Regent-street window have certainly been exquisitely beautiful. All kinds of Lilies, Jessamines, Bouvardias, Lilacs, Roses, Orchids, Spireas, and so on are grouped upon these formal objects in the loveliest of open bouquets, or trailed in wreaths of surpassing delicacy of form and harmony of colour.

Without venturing upon any comparison between these West-end displays and those to be seen in Covent Garden or elsewhere, it is impossible to withhold from them a tribute of almost unqualified admiration; and the exquisite effects some of these foreigners contrive to produce with a few simple flowers indicate the artist as surely as does the production of a charming picture by a limited number of colours and a few bold touches. "And are these the work of female hands?" one florist was asked. "No," was the emphatic answer. "They are done by men. We can't get them done by women." Perhaps it would have been more correct to say, "We do not get them done by women." That female artists are not to be found who are equal to the best of this work it were ungallant in the extreme even to suggest, and we flatly refuse to believe it. If the cultivated tastes of the wealthy classes are really inclining them to eschew the mechanical symmetry of the old-fashioned bouquet and to demand works of real art in the composition of their floral decorations, there would seem to be every prospect of the rapid development of a pleasant, appropriate, and profitable employment for women of artistic tastes.

HOLLYHOCKS.

PERHAPS in no position in the garden are these plants more at home, or display their flowers to greater advantage, than on raised mounds between shrubs. They have a most picturesque appearance when planted in such positions so that their lofty stems tower well above the shrubs which form the groundwork of the clump.

To develop their full beauty they must be planted in thoroughly fertile soil; in fact, the richer the soil the stronger they grow, and the more handsome they are, either viewed singly or in the distance. Two or three years ago we made some new plantations of shrubs, in which were incorporated large quantities of vegetable matter. In this compost the majority of the spikes attained a height of from 8 to 10 feet. They were very fine, and the same end may be attained by digging the ground deeply and heavily manuring it previous to planting. To trench or dig deeply large plots of ground for this purpose is not needed, but if planted amongst shrubs that have ample room to develop themselves, a space of

2 feet square, well prepared, is ample for each individual plant. Under these conditions they will attain such dimensions that will surprise all who have only planted them in poor soil.

Young plants raised from seed sown during the months of July and August, and wintered in 3 and 4 inch pots, should now be strong and in good condition for placing out, provided they were transferred when ready into 6-inch pots, and have been thoroughly hardened. Strong plants in this condition will flower with certainty, but weak puny ones will fail to do so. Plants raised annually from seed or cuttings are more certain to pass the winter safely than old stools. Very few of those that flowered last year for the first time have succumbed, and none of the smaller ones placed out last spring that failed to flower. But many old plants have been lost through the severe weather of the past winter.

Autumn propagation is generally commended and largely practised, but we have invariably found a great difficulty in obtaining satisfactory cuttings that have sprung from the base. At this season good cuttings are plentiful, and we have found no perceptible difference in propagating now instead of the autumn; in fact, if advantages are gained by either method, they are certainly on the side of raising stock from cuttings in the spring. They are not on hand so long, and are far more certain to strike than cuttings taken in autumn; in fact, they root freely at this period if taken as soon as they are well above the ground. The cuttings should be inserted in sandy soil and placed in a temperature of 60°. Amateurs need not despair, for they can propagate them readily enough if placed under handlights in the greenhouse. In whatever position the cuttings are placed they must be shaded from the sun until they are rooted. Cuttings rooted in spring do not flower the same season, but they are in the best possible condition for doing so the following year. All things considered, especially where frame room is limited, we consider propagation at this season of the year much the most satisfactory. If they cannot be planted in the position in which they are to flower, they can be placed out closely together on any spare portion of ground, and permanently planted in early autumn. To defer planting until the spring means a severe check to the plants, and they do not in consequence attain to the same height, and thus their noble appearance is somewhat destroyed.—H.

SPRING FLOWERS.

WITHOUT having any intention of writing in a spirit of detraction respecting the large number of truly beautiful spring flowering perennials, it is quite possible to maintain the assertion that as far as the majority of gardens are concerned comparatively few of those in general cultivation fully meet the requirements imposed by the present state of floriculture in this country. I do not wish to enter into the question of the permanent planting of gardens with large and varied collections of hardy perennials to the exclusion of what are generally known as bedding plants, but simply to assume that the greater part of the flower garden during the summer will be planted with half-hardy and other bedding plants. It then remains to be seen what hardy plants there are available for the purpose of spring decoration, and it seems that before any plant can be considered really useful for this purpose it should possess the four following qualities—viz., free flowering, decided colour, must be easily propagated, and finally of such a habit of growth that will not be severely checked by frequent removal. These may seem hard conditions, and yet they are not more than what is really required. This being the case a few plants will be considered in detail.

ALYSSUM SAXATILE (GOLD DUST).—This pretty little plant is an old inhabitant of English gardens, having been introduced from Russia in 1710. It forms what may almost be termed a small bush about 9 inches in height, the branching stems being of a somewhat woolly nature; the foliage is very dense, lance-shaped, and so thickly covered with short hairs as to give the whole plant a downy or hoary appearance. The flowers individually are small, but are so freely produced in racemes that the plant seems covered. It may be propagated by cuttings, but is so easily raised from seed sown either in pots or in the open ground, that the former method is seldom resorted to. Many defer the sowing until July or August, when biennials and annuals for spring bedding are sown, but it is preferable to sow in March, and transplant when large enough into a store bed. They will by this means be much finer when required in autumn for the purpose of filling the beds for spring display. It prefers a light and rich soil. There are two varieties in general cultivation. The one named *compactum* differs in no way from the type but in closeness of habit, which is certainly desirable. The other has pretty variegated foliage, and in order that this may be seen to the best advantage all flowers should be removed. As this variety is not constant from seed, propagation by cutting should be resorted to.

ARABIS ALPINA AND ALBIDA (WALL CRESS).—These two plants are generally confounded, and, indeed, without considerable practice it is difficult to distinguish them; perhaps, indeed, there may only be a varietal difference, but this is a matter for the botanists. They are so well known that it is almost useless to describe them, except by saying that *albida* may be distinguished by its larger flowers and leaves, the latter also having but few teeth, while those of *A. alpina* have many and smaller teeth. When the plants are taken up to make room for the

summer occupants of the beds they simply require to be divided and planted deeply in well manured ground in the reserve beds until the autumn. There are at least two variegated varieties, one having the leaves tinted with yellow, the other white; probably the former is a variety of *A. albida*, and the latter of *A. alpina*. They both produce their racemes of white flowers as freely as the green form, but do not add to their effectiveness.

AUBRIETIA.—A genus of small rock plants of a spreading habit, which has produced a number of various forms from seed; this, consequently, adds considerably to the difficulty of deciding upon the best forms for our purpose. If any reader selects a few pods of seed from the best flowers, sows them as soon as they are ripe, pricks out the seedlings into good ground, he will in the ensuing spring probably find several different forms, varying considerably not only in the size of bloom and richness of colour, but also in habit, some being coarse and straggling, while others form neat and compact tufts. The best of these should be selected, and when the flowering season is over they ought to be cut off close to the ground, when a quantity of young fresh shoots will spring up, from which, if cuttings are taken and inserted in sandy soil under an ordinary handlight or cloche, and shaded for a time, they will root freely. This method is mentioned in preference to that of division, as they often form a multitude of stems from a very small root-stock, and unless planted in moist soil they often refuse to establish themselves with any degree of certainty. By those who do not wish to raise seedlings for themselves the following varieties can be recommended—*græca superba*, a large flowered and free growing lilac-purple form; *Hendersoni*, probably the best of the close growing purple varieties; and *violacea*, a very dark form, of intermediate habit, first seen by me at the Royal Horticultural Gardens, Chiswick.—G. GUTHRIE.

(To be continued.)



ORCHIDS AT KEW.

VISITORS to the Royal Gardens, Kew, who only go occasionally can form but an inadequate idea of the collection of Orchids. Those, however, who see them frequently, know that there is a continual succession of curious, interesting, and beautiful forms throughout the year, and that in some respects the collection is unequalled. It has assumed such an important position within recent years that its history may be worth a few minutes' attention. When Kew was in what might be termed its crude and undeveloped state about the middle of the eighteenth century, the formation of the Orchid collection was commenced with the hardy British or European species, as there were then very few exotic or tropical Orchids in cultivation. One of the first tropical epiphytes to flower was *Epidendrum cochleatum*, which produced its flowers in 1787, and was followed in the next year by *E. fragrans*, but until the close of that century the Kew collection was a small one. When the second edition of the "*Hortus Kewensis*" was published in 1813, there were 115 species, eighty-four of which were exotics. Some of these were introduced by Dr. Roxburgh from India, and comprised such well known Orchids as *Saccolabium guttatum* and *Aerides odoratum*, while a few years later came *Dendrobium Pierardi*, with others from Calcutta brought by Mr. Pierard. Mr. J. Bowie and Mr. Allan Cunningham commenced their travels as collectors in 1815, and during the two years they were in Brazil numbers of Orchids were shipped to England. Subsequently Cunningham also dispatched a collection of Orchids from New South Wales, comprising the beautiful *Dendrobium speciosum*, and during five or six years he sent many other species. About the same period some were obtained from Trinidad, amongst which were *Oncidium Papilio*, *Stanhopea insignis*, and *Ionopsis pallidiflora*. The Cape of Good Hope, Java, and other countries also contributed, but there does not seem to have been a rapid advance for a long period. About 1841 Sir William Hooker enriched the collection by the addition of 200 species purchased from Loddiges for £50, a moderate price for such a number. By 1848 there were 755 species cultivated at Kew, and in 1850 the total was 830, but after that there was a reduction in the number of cultivated forms to 638 in 1864, and to 400 in 1868. I have not been able to learn the cause of this decline, but substantial progress has been made since then.

The following are a few particulars concerning the Kew collection at the present time. The number of genera is 148, comprising 1204 species, exclusive of varieties, and 200 unnamed plants. Thus the collection is richer now than ever it has been before, and there is a good proportion of what are termed botanical and horti-

cultural Orchids. The genera most largely represented are *Dendrobium*, 105 species; *Oncidium*, 90; *Odontoglossum*, 61; *Masdevallia*, 76; *Epidendrum*, 57; *Cypripedium*, 56; *Cælogyne* (including *Pleione*), 39; *Maxillaria*, 27; *Bolbophyllum*, 26; *Phalenopsis*, 17; *Disa*, 15; and *Vanda*, 22.

During the year 516 species and varieties flowered, included in ninety-three genera, the principal of which were the following, the numbers indicating the distinct species that flowered—*Odontoglossum*, 34; *Oncidium*, 34; *Masdevallia*, 38; *Epidendrum*, 35; *Cypripedium*, 33; *Cattleya*, 20; and *Dendrobium*, 51. Taking the months in seriatim, the number of species which flowered in each was as follows—January, 83; February, 75; March, 74; April, 106; May, 105; June, 117; July, 108; August, 96; September, 88; October, 128; November, 101; and December, 95. This is a most interesting list, and has been obligingly supplied to me by Mr. W. Watson, together with other statistics incorporated in these notes. It is doubtful if any other family of plants would afford such an equal distribution of species throughout the year. Taking the six months, October to March inclusive, 558 species flowered, as against 620 species during the six spring and summer months, a difference of only sixty-two in favour of the latter.

Two houses are devoted to Orchids and open to the public, besides a porch in which *Sarracenias*, *Droseras*, and *Pinguiculas* are grown, and which, being furnished with outer and inner doors, prevents the sudden inrush of cold air in the winter when visitors are entering or leaving the houses. Next to this is the intermediate or Mexican house, and then there is the warm or *Cattleya* house, which contains most of the *Cypripediums*. Several houses to which the public are not admitted, are also occupied with Orchids during their resting or growing periods, and they are removed thence to the other houses when their flowers are expanding. This permits a much larger collection to be grown and represented than could otherwise be the case, and is more beneficial to the plants, as they can be accorded the treatment best suited to their requirements.

The appended list of Orchids in flower at the present time will give an idea of the nature of the displays produced, though necessarily, as a large number of one species is not grown, such brilliant effects as those in some nurseries and private gardens are seldom seen. *Cattleya Mossiæ*, *C. citrina*, *C. Trianæ*, *C. Skinneri*, *Brassia verrucosa*, *Dendrobium moschatum*, *D. Jamesianum*, *D. Deari*, *D. Parishii*, *D. hircoglossum*, *D. Dalhousianum*, *D. transparens*, *D. Lowi*, *D. mesochlorum*, *D. suavissimum*, *Saccolabium Blumei*, *S. gemmatum*, *Epidendrum selligerum*, *E. vitellinum majus*, *E. virens*, *E. variegatum*, *Cymbidium ensifolium*, *Phaius* (*Thunia*) *albus* var. *superbus*, *P. Wallichii*, *Cælogyne ocellata*, *Lycaste aromatica*, *L. (Colax) jugosa*, *L. candida*, *Masdevallias ochthodes*, *Veitchiana*, *infracta*, *floribunda*, *Harryana*, *erythrochæte*, *triaristella*, *muscosa*, *coriacea*, *Reichenbachiana*, and *Wagneri*, *Restrepia elegans*, *Liparis Loiselli*, *Oncidium aureum*, *O. dasystyle*, *O. ornithopodium*, *O. Weltoni*, *O. pulvinatum*, *Hexadesmia crurigera*, *Odontoglossum vexillarium* (three fine plants with twelve racemes), *O. pulchellum*, *O. Halli*, *O. maculatum*, *O. hastilabium*, *Miltonia spectabilis*, *Cypripedium barbatum*, *C. Roezli*, *C. Lawrenceianum*, and *Cleisostoma Wendlandi*.—VISITOR.

OVERCROWDING.

THE prevailing evil of the present system of gardening is that of overcrowding plants. No matter how many gardens are visited the common practice is painfully visible in one department or another. To think for a moment that such methods result in a better return of plants or flowers, or that the effect produced is in any way enhanced, is one of the greatest mistakes, but much at this period of the year can be done to avert disastrous consequences that are certain in some shape or other to follow overcrowding.

The advantages that result from the proper maturation of the wood of Vines, Peaches, and other fruit trees under glass, and on walls that have their branches thinly and judiciously disposed, so that light and air have free access, has long since been fully appreciated by the best cultivators. If the results are so satisfactory in the case of fruit trees they are equally essential to other plants. If we glance for a moment at the condition of Melons and Cucumbers in many gardens, and even Tomatoes, we find them a crowded mass of foliage. This ends in a severe thinning, and the fruit suffers in consequence. Certainly Cucumbers and Tomatoes will bear it without any appreciable injury; but this is not wise, for the plants are checked for the time and crippled fruits follow. This is not all, for the foliage left to furnish the plant is soft and flabby by overcrowding, and will not afterwards bear full exposure to sunshine. Good well flavoured Cucumbers cannot be grown if the plants are allowed to become crowded with foliage, for a large percentage of it is certain to be scorched or damp before the crop of fruit is perfected. Plants that are crowded with foliage are far more susceptible to the attacks of insects than those with the whole of their leaves fully exposed by being gradually thinned out from the first. To have really first-class fruits the main foliage must be preserved in a healthy condition until the fruit is ripe. This can be accomplished by the re-

removal of all small leaves from the axils of the large or main leaves, and all laterals that are not required to furnish the roof. Dispose the foliage so that it is fully exposed to sunshine. If this is done the border in

mass in the majority of cases. Under the conditions pointed out there is perhaps not one plant in a hundred that will bear close inspection. Do we find the exhibitor of specimen plants, such as Crotons, Ixoras,



Fig. 8.2—HARDY HYBRID AZALEAS. (See page 478).

which they are growing will not be densely shaded, but a subdued light will penetrate ; and this is as it should be if the most successful results are to be achieved.

If we view the structures of amateurs and in large private establishments that are devoted to the culture of plants, we find them a crowded

and Heaths, crowd his specimens with Palms and other large-growing examples? No, he stages each plant singly, so that a corresponding amount of light and air can play about them, so as to give each specimen ample room to develop in a natural condition all round. If large plants require such treatment it is equally important with small ones, whether

used for decoration singly or in groups for the beauty of their foliage or the production of their flowers. A dozen shapely, well-developed plants are of more value for the purpose for which they may be required than a hundred injured by overcrowding. Not only are well-developed plants more beautiful in appearance, but they bear hardships in trying positions much better than those drawn up soft and weakly. The same is the case with flowering plants; one plant allowed room to grow and develop itself properly is capable of giving greater satisfaction and producing more flowers than a large quantity that has been produced under an injudicious system of culture. The excellent examples of plant culture that are produced by growers for the market are not the outcome of crowding. They have discovered the advantages to be attained by giving each individual plenty of room. Equally satisfactory examples could be produced—and are in some instances—in private gardens if houses were not overfilled with plants. All that is required at the outset is a knowledge of the room the plants will require when they have fully developed, and then grow no more than ample accommodation can be provided for.

In flower beds and borders the object seems to be to crowd as many plants as possible into them. Many borders that would be gay for a long time, and the plants flower without any break successionally, are rendered unsightly, or fail to present that neat and effective appearance that might be anticipated. Crowding too many plants into such positions entails considerable unnecessary labour and unsatisfactory results. An example of this crowding occurred only a day or two ago. In a bed in which Roses were planted, none too far apart, Scabious and similar plants were being placed between them at distances not more than 6 inches apart. If the Roses had not had possession of the bed the plants were much too close to give them a fair chance. The result of such planting would smother the Roses, and partially if not wholly ruin them by autumn, while the Scabious and other plants between them would not produce one-twentieth the flowers that would be the case if they had been disposed 1 foot apart each way, in fact 15 inches is near enough for Scabious. Pentstemons should not be nearer, and Stocks and Asters should be 1 foot and 9 inches apart respectively. It is better to allow 2 or 3 inches in each case. These evils do not so generally occur when whole beds are planted with one kind as when the dotting system of bedding is practised. Therefore, every care should be exercised when placing out such as are usually planted amongst the permanent occupants in mixed herbaceous borders. When the size to which they grow is not taken fully into consideration, and planting done at random, the beds and borders become a mass of weedy material long before autumn.

While on the subject of mixed herbaceous borders, planting too thickly is not the only system of crowding which is allowed to prevail. The permanent plants, such as Phloxes, Delphiniums, Asters, Helianthemums, and others, are generally left to themselves, and bundled in large clumps to a single stake. To do such plants well, and give them every chance of developing their full beauty, the shoots should be thinned out at this season of the year, all the small weakly ones be removed, and only the strongest and best retained. The labour for this operation can scarcely be taken into account, for it is surprising what a large number of plants can be done in one day by a handy man. The neat healthy plants and finer flowers more than compensate for the trouble. An example of close planting *versus* giving plenty of room, may be cited in the case of *Nicotiana affinis* planted out last year. One plant was placed out between two shrubs where it had abundance of room. It branched wonderfully, and had open during the evening over 200 blooms on several different occasions during the season. It grew into a beautiful specimen, while a dozen of others placed out thickly together did not produce the same effect. The central plants scarcely branched, and but for the outside ones that took advantage of the vacant space about them, would have proved a total failure in comparison with the single specimen.

If amongst plants one class more than another is ruined by overcrowding, it is annuals sown in the open borders outside. Too frequently they are sown and left to take care of themselves afterwards. This means short life and failure. As regards a display in comparison with those that are treated to timely and judicious thinning, it is surprising what effect annuals will produce, and what a length of time they last in beauty if they are only given plenty of room to branch naturally, as many of them will do. Neglect in thinning has been the cause of annuals being looked upon as weedy and worthless. Grow them well by attending to their small wants, and such opinions will be changed respecting a large number of varieties.—R. M.

THE MOON FLOWER (IPOMÆA NOCTIFLORA).

REFERRING to a note in the *Florida Despatch* upon this plant, which we quoted recently, a writer in a subsequent number observes:—

"One of your correspondents waxed eloquent over the beauty, fragrance, and rapid growth of the Moon Flower, all of which is very fine, and calls it a native of Mexico. Perhaps it is, and perhaps it is also a native of Florida. I remember twenty years ago gazing with wonder and admiration upon it, running riot in the hammocks and swamps along the St. John's River. A succession of winters nearly free from frost had permitted a continuous growth of several years, and vines could be seen, with stems like cables, clambering over the undergrowth and into the tops of the tallest Cypress trees, which were hidden under a smother of the large, pointed, dark green leaves of this giant *Ipomœa*. That a ranger who was startled by coming suddenly upon twelve or

fifteen of the blooms around the corner of the house undoubtedly would have been paralysed, or, as they say out West, 'completely chawed up,' had he emerged from the woods and seen, as I have seen, untold thousands of snowy chalicees lighting up the deepening shades of the river forest after sunset, or wet with dew and sparkling in the beams of the morning sun, like geysers set in emerald. The eye rested upon the scene before it as upon the decorated curtain of a theatre; but the puny effort of man was as nothing to the mighty screen, acres in extent, dropped from the vault above and obscuring the horizon with a maze of richest colour. The effect was only paralleled by that of the Yellow Jessamine (*Gelseminum*), which, early in the season, spreads before us more than acres, even miles of golden glory.

"Romantic and æsthetic natures, with nothing else to do, may ecstasise over the magnificent prodigalities of Nature; but when the stern old granger comes, whose absorbing idea is the *utile* without the *dulce*, they fade before his axe, plough, and hoe like the boy's ecstatic dream before the morning call of the relentless taskmaster. The same old man looks with dismay upon the myriads of Ox-eyed Daisies, the Marguerites that poets rave about, taking possession of his fields, and he straightway turns in a flock of sheep, before whose persistent nibbling of the buds they quickly vanish. I cleared up a patch of swamp alongside the aforesaid natural plantation of *Ipomœas*, and as the Rice grew was kept busy pulling volunteer Moon Flowers out of it till he wished the whole tribe as far away as the midnight luminary herself. Never till now did I realise how foolish I was. Those Moon Flowers, like Whittington's cat, might have laid the foundation of an ample fortune. Look into all the papers and you will see these identical pestilent weeds, for they are nothing less, puffed throughout the length and breadth of the land by the redoubtable Peter Henderson. He actually charges forty cents each for these weeds, and boasts of having last year sold 50,000 of them. This only shows the difference between people. What you and I, dear reader, pull up and throw away, the mighty Peter turns into the snug sum of 20,000 dollars a year. No wonder he can sit down and talk about "Gardening for Profit." We raise Tanyahs (*Caladium esculentum*) to feed our pigs and chickens, and he sells the same tubers at a quarter each, realising about 150 dollars per barrel. If the stern old theory of the survival of the fittest holds, what wonder that stout old Peter flourishes like a green old Bay tree, while thousands of his calling fail, go hence, and are seen no more.

"Why should not we imitate Peter and make a fortune out of some of our native weeds? There are 'as good fish in the sea as ever were caught.' Why does not someone lay hold on that other beautiful native *Ipomœa* (*sinuata* or *quercifolia*), almost as rambling in habit as the *noctiflora*, and bearing in profusion a pure white bloom with scarlet throat, and make his jack before Peter the Great gets ahead of him? Nothing can surpass it for screens, and its palmate deeply cleft leaves with pinnatifid segments are exquisite as lace."

POINSETTIAS IN SPRING.

It would be difficult for anyone to name a plant that is more attractive in November, December, and January than the Poinsettia. Their brilliantly coloured heads at that dull period are most conspicuous, and all who have a warm pit or greenhouse should grow them. I believe many small cultivators are deterred from doing so by the impression that they cannot be grown successfully in any other place but a stove. They certainly do remarkably well in a stove, but they are very little inferior in a temperate house or pit, and the want of excessive heat need never prevent anyone growing them extensively and well. They have one great advantage, and that is they do not require to be started very early in the season. While the majority of plants are demanding attention in February, March, and April the Poinsettias may be kept quite dormant during that time, and they do not even require to be kept standing up on end or in a growing position, as they do equally as well lying on their sides under a stage and quite dry. This is the treatment we give our old plants until we have the houses cleared of the bulk of the spring plants, and then we have plenty of space to devote to the Poinsettias.

We rarely retain any of the old plants, but propagate some every spring. Our reason for doing so is that the young plants are more compact and invariably produce the most showy heads; but the old ones are not dispensed with until the cuttings have been taken from them. When they are brought out for this purpose they are watered repeatedly, as being dust dry during the time they are at rest one watering will not penetrate the dry soil; and when thoroughly saturated they are placed in a gentle heat to induce them to grow. The result is that every bud on the stem shoots out and becomes a little branch. It is these which form the best of all cuttings, and they should be detached when about 4 inches long. The Poinsettia is full of a milk-like juice, and when any part is cut this runs out, and although the cuttings will bleed freely no injurious results will follow. It is a bad plan to cut them with a knife, as the wood is so soft and pithy that cutting can hardly be done without injuring the tender wood; and the best of all ways of taking the cuttings is to draw each little shoot off by the part where they join the old wood. They are easily severed,

and the cuttings are then secured with what is commonly termed a "heel." They root much sooner when treated in this way than if cut. Insert each cutting in a small pot that has been filled with a mixture of leaf soil, sand, and a little loam. Place them in a bottom heat of 70° or 80°, and shade until rooted. They will root in ten or twelve days, and they may then be placed on a shelf and away from draughts.

They will soon increase in size, and when it is seen that they are making good headway they should have their first potting. If the cuttings were inserted in 2-inch or 3-inch pots they may be transferred to 5-inch and 6-inch pots. Drain these carefully, and in repotting do not disturb the roots, as they grow best if not shaken or broken in any way. The potting mixture at this time ought to be substantial. We prefer fibrous loam, and with it should be mixed a little horse droppings, leaf soil, and sand. Mix these well together, and in potting make the soil very firm. After potting they should again be placed in a temperature of 65° or 70°, and in a close moist atmosphere, and when once they have rooted into the new soil they may be placed in any unheated glass frame during July, August, and the greater part of September, as very dwarf healthy plants are produced in frames, and this will indicate that they are by no means difficult to manage in summer.—M.



THE GARDENERS' ORPHAN FUND.—The rules for the governance of this Fund were revised at the meeting of the Provisional Committee held last Tuesday, and advance copies ordered to be printed. It was announced that Baron Schroder had intimated through Mr. Veiteh his intention to contribute to the fund, and that Mr. Veiteh also intended to support it with the handsome grant of £100.

— AT a meeting of the **HORTICULTURAL CLUB**, Henrietta Street, Covent Garden, on Tuesday the 14th inst., a most interesting paper on the history and culture of the Tulip, contributed by Mr. Polman Mooy of Haarlem, was read by the Secretary, Rev. H. H. D'Ombraïn. The paper dealt very fully with historical details relative to the introduction and early culture of the Tulip in Holland, and traced its progress through the period of the Tulip mania to the present time. The various groups of varieties and their distinguishing features were referred to at length, and many important facts were mentioned in regard to its history. At the conclusion a hearty vote of thanks was accorded for Mr. Polman Mooy's contribution.

— WE are requested to state that owing to the pressure on the **NATIONAL ROSE SOCIETY'S MEDALLIST** in consequence of the Jubilee, the medals cannot be delivered to affiliated societies until the end of next week, about the 24th June.

— WE are desired to state that **CARTER'S JUBILEE MIMULUS** was awarded a first-class certificate at the recent Crystal Palace Show, but owing to some oversight it was omitted from the official list.

— WE learn that **MR. ARCHIBALD MCINTYRE**, who was long familiar to London horticulturists as the Superintendent of Victoria Park, died on the 4th inst. Mr. McIntyre was born at Netherby, near Carlisle, on October 19th, 1828, and after serving in several gardens with his father he spent some time in Messrs. Little & Ballantyne's establishment at Carlisle. He subsequently held several responsible positions, was foreman in the Royal Gardens, Kew, and for thirteen years Superintendent of Victoria Park, which during that time became celebrated for carpet bedding and general good condition.

— WE have received the schedule of the summer Show of the **LIVERPOOL HORTICULTURAL ASSOCIATION**, which opens on July 30th in Sefton Park. It is comprehensive, consisting of ninety-seven classes. The chief prizes are £15, £10, and £5 for twelve stove and greenhouse plants; £8, £5, and £3 for eight; and £6, £3, and £2 for six plants. Substantial prizes are offered for Roses, £12 in three prizes for a collection of fruit, and the same amount for two collections of vegetables.

— REFERRING to **SILICA IN SOILS**, Mr. D. Gilmour, jun., writes:—"In his last communication on this subject, Mr. Abbey announces

that he has no intention of returning to it. In that case, as he is entitled to the last word, I ought not to say anything further; but I am sure he will pardon me if I point out to him that in this matter, on the one side we have all the authorities (as far as I know), while on the other we have only Mr. Abbey. In the same number of the Journal in which Mr. Abbey's article appears I was pleased to read the capital article on Wheat (page 453). I recommend Mr. Abbey to glance at the second paragraph. In conclusion, I, too, have to thank Mr. Abbey for the courteous manner in which he has conducted his argument."

— THE COMMITTEE of the **BROCKHAM ROSE ASSOCIATION** announce that they have been unavoidably compelled to change their Show day from July 9th, the great review day, to Tuesday, July 12th.

— WE are informed that the coloured plates issued in "Familiar Wild Flowers," "Familiar Garden Flowers," and "Familiar Trees" are about to be used at the museums at Kew Gardens.

— AT the **Birmingham Chrysanthemum Show**, which opens on November 16th, the chief prizes are £10, £7, £4, and £2 for forty-eight cut blooms, and £6, £4, and £2 for specimen plants. Good prizes are provided in the cut bloom classes generally. Classes are as usual provided for Primulas and other plants, and a good autumn display may be expected.

— THE **FINE MUSHROOMS** referred to last week as having been sent to us by Mr. J. Main from a bed spawned last November were sent by Mr. J. Muir from Margam Park.

— **ILLUMINATIONS** are now or soon will be the order of the night. With the object of enabling the greatest number to join in them safely, pleasingly, and inexpensively, what is termed a **CANDLE LAMP** has been invented, and a specimen has been sent to us for our opinion. We have no hesitation in stating that we think this lamp will serve much more than a temporary purpose. It is in brass, 15 inches high, with an oval shaped globe 4 inches in diameter, clear and in different colours, the candle being kept in position by a spring, as in carriage lamps. These handy little candle lamps will add to the attractiveness of greenhouses and conservatories at night, and of gardens after dark on the sultry nights of summer. As may be seen in our advertising columns, this domestic illuminator, so opportunely introduced, is ready for distribution.

— **MESSRS. PAGET & Co.** have sent us for trial a handy garden pump and engine. It is light, yet strong, can be easily pushed onwards on its wheels with one hand. The necessary force for ejecting the water is applied by the foot to a strong bellows-like arrangement near the bottom, both hands being at liberty for guiding or distributing the water, this being divided at will by a twisting shield at the end of the pipe. Many persons would be glad to have such a useful appliance as this for washing their trees and watering their flower beds on the evenings of hot days.

— WE had the pleasure of an inspection of **MR. MCINTOSH'S GARDEN** at DUNEEVAN on Monday last, and just "caught" the Rhododendrons in beauty; but before the scorching day was over thousands of trusses were withering. The display has not been quite so imposing as usual, and has, through the season being late and the summer coming suddenly, been of short duration. Yet the cherished garden was very delightful, trees and flowers blending most harmoniously—Oaks that must have belonged to the "forest primeval;" a Birch, considering its size and contour, that may be regarded as a model; one of the best specimens of *Abies Albertiana* to be seen; and without any exception the finest example of *Cupressus Lawsoniana erecta viridis* in existence. These, with a magnificent Laburnum and handsome Purple Beech, all just in the right places, with the large beds and isolated standard Rhododendrons, afford as much to admire in the space as it seems possible to conceive.

— A FEW of the more **STRIKING RHODODENDRONS** were Doncaster, glowing red, approaching scarlet, the brightest of all; Iron Duke, ruby crimson, white stamens; George Paul, deep crimson, richly spotted, fine truss; Lady Grey Egerton, silvery blush, smooth flowers, and handsome truss; Lord Ongley, crimson scarlet; Sigismund Rueker, magenta, very dark blotch; Garibaldi, crimson scarlet, bright; Iago, grand trusses of fine blooms, rosy crimson, with dark spots; Princess Mary of Cambridge, bold handsome trusses of blush centred flowers edged with rosy purple; Purity, a charming white; and Lady Emily

Peel, bright rose, richly spotted. Those are a few out of many that commanded attention, and are distinct and good. As one of the best patrons of horticulture and a helper in all good works it is particularly gratifying to state, as it will be to many to learn, that Mr. McIntosh is recovering from a protracted and serious illness, and that he can begin to enjoy his garden once again.

— THE gardens at KNOTTS GREEN, LEYTON, the residence of J. G. Barelay, Esq., are invariably very attractive at the time when the South Essex Horticultural Society's Exhibition is held, and this season, though the trees, shrubs, and plants are much later than usual, there are sufficient to impart a bright appearance. One vista across a small lake bounded on each side by high shrubberies, in which scarlet and white Thorns, Laburnums, Rhododendrons, and Lilacs are freely employed, and which are now flowering abundantly, is charming, a small rustic bridge near the end of the lake adding to the effect. The extensive lawns are well kept, and the large plants in the conservatory and most interesting "natural" fernery are in excellent condition. On the rocks in the fernery Begonia Rex varieties and Nephrolepis tuberosa are extremely luxuriant. The condition of the garden is most creditable to Mr. Donald's management.

— MR. J. UDALE, Elford Hall Gardens, writes:—"It is pleasing to occasionally find attention given to OLD-FASHIONED FLOWERS, no matter where, or in what way. Numbers of beautiful and interesting plants keep dropping out of sight, and it appears as though Fuchsias, Pelargoniums, Crotons, Dracaenas, or Dieffenbachias were to be the principal greenhouse and stove plants. Orchids we leave out of the category of stove and greenhouse plants. At Broom Leasoe, Whittington, Lichfield, we occasionally find something in flower that is only to be found in botanic gardens, and rarely in private gardens. For some time past the old-fashioned Hemimeris has been producing its panicles of scarlet red flowers, giving a brilliancy not to be found in any Polygala, and only equalled by the equally old-fashioned Lescanaltia formosa. The curious and more beautiful Schizanthus retusus, S. papilionaceus, and S. oculatus are coming into flower, and will give a profusion of their Orchid-like inflorescence during the summer months. Hoya carnosa is producing a number of clusters of its beautiful wax-like flowers. Many people, in gathering these flowers, make the mistake of cutting the flower stem away with them, whereas, if they were to leave the stem, it would produce flowers year after year. At Broom Leasoe Mr. and Mrs. Inge have found that out, and act accordingly. Phyllocactus crenatus, P. Jenkinsoni, and P. multiflorus are flowering freely in the same garden, and though the flowers individually are not very durable, yet their number and gorgeousness amply compensate."

— AT a recent ordinary meeting of the members of the WAKEFIELD PAXTON SOCIETY, held at Councillor Lupton's, the Saw Hotel, Mr. Henry Oxley of Bond Street, one of the Vice-Presidents, was in the chair, and Mr. G. Bott of Walton acted as Vice-Chairman. There was an average attendance of members. Mr. R. Walker, head gardener to Mr. Edmund Calverley, J.P., of Oulton Hall, read a brief but thoroughly practical and most interesting essay on "The Cyclamen." Mr. Walker is a well known and successful gardener, and he was a warm friend of the late Mr. J. Wainwright, the first President of the Society. Mr. Walker has recently been devoting special attention to the cultivation of the Cyclamen, and in his essay he fully explained his mode of treatment from the sowing of the seed to the flowering period, and he exhibited one of his fine plants and also a quantity of bloom. A number of questions were put to the essayist by Messrs. G. Bott, T. Garnett, E. Fenner, J. G. Brown, and others, and at the close of a long and interesting discussion a hearty vote of thanks was accorded to the essayist on the motion of Mr. Cordon, seconded by Mr. J. W. Simpson, and supported by Mr. T. Garnett and Mr. Oxley.

— WAKEFIELD PAXTON SOCIETY.—The following is the programme of meetings for the second quarter of session 1887-8, to be held at the Saw Hotel, Westgate, each Saturday evening, at 8 o'clock. June 18th, Half-day excursion to Studley Royal and Fountains Abbey, for which tickets must be taken by the 11th inst. June 25th, Discussion on the Pink, Pansy, and early summer flowers, with specimens. July 2nd, The Pea, with specimens. July 9th, The Pelargonium; Mr. T. Marsden, Sheffield. July 16th, The Rose. Discussion and exhibition. July 23rd, The Cucumber; Mr. J. A. Mann. July 30th, Window garden show,

August 1st, Annual meeting of Yorkshire Association of Horticultural Societies at Barnsley. August 6th, Clay, its civilising effects on the human family at home and abroad, with specimens; Mr. C. J. Willis. August 13th, The Carnation and Picotee. August 20th, The Tomato; Mr. J. P. Carter. August 27th, Fertilisation; Anonymous.

— INSECTS ON BOX.—Several samples have been sent us of Box growths infested with a flat greenish insect, and we have also seen abundant examples of the same pest in widely separated districts this season. The insect attacks the young shoots, and as far as we have seen is confined to the Box. An experienced entomologist sends the following note on the subject:—"The insects I have also noticed some seasons, but not so numerous, I think I have also found them on Myrtle. I take it to be one of the Homopterous group, allied to the familiar froghopper Cereopsis spumaria, this species being Ptyelus aromaticus. It does not surround itself with a fluid like the froghopper, but throws off a gummy substance it extracts from the plants in which it occurs. Hence syringing, unless this be done with hot water, has little effect upon it. So far as I have observed, it does no particular injury to the shrubs, except that it disfigures them. It may lessen their vitality, though it seldom occurs in large numbers on either Box or Myrtle."

— "X." sends the following:—"The Society of Arts Journal claims that the LARGEST VINE IN THE WORLD is one growing at Oys (Portugal), which has been in bearing since 1802. Its maximum yield was in 1864, in which year it produced a sufficient quantity of Grapes to make 750 litres (165 gallons) of wine; in 1874, 665 litres (146½ gallons); and in 1884, only 360 litres (79¼ gallons). It covers an area of 494 square metres (5315 square feet), and the stem at the base measures 2 metres in circumference."

— A CALIFORNIAN FLORAL FETE.—California must indeed be a land of flowers, says Mehan's "Gardeners' Monthly," judging by the festival that, extending over two weeks, has excited the famous old town of Los Angeles. Hundreds of contributors of cut flowers poured them in from all parts of the country. Designs, as they are called, of cut flowers furnished fresh novelties every day. The "unveiling of a floral ship" was the great work of the first day. On the second day a great attraction was the American flag, the red being of Zonal Pelargoniums, the white of Pyrethrum, and the blue of Heliotrope. A grand cross which had been used the day before in Episcopal services was exhibited, the golden colours made of yellow Marigolds. A huge shield made of Marigolds, Roses, Geraniums, and Stock Gillies, was sent by Mrs. Crocker as a contribution from the Citrus Valley. A huge fan, the rays 15 feet long, was a "design" highly applauded. A huge snow shoe made of white Pyrethrum and Geraniums divided the applause with it, bringing cooling memories into a warm day. The floral ship was 13 feet long, and bore a cargo of Oranges. The grand design, however, was the famous shoe of Mother Goose, in which her huge family of children were all represented as large as life. Geraniums made the shoe, except Marigolds were at the heel, and a binding of Smilax fringed the orifice. Roses seem to be the favourite flower, as well as elsewhere. A branch of the Washington Noisette had thirteen flowers full blown, and fifty-seven unexpanded buds. Mrs. Heaven exhibited 100 named varieties in cut flowers. Mrs. Fox sent a flower of Paul Neyron that measured 18 inches round. The "shoe design" was 6 feet long, and 3 feet high. The public school children sent a huge painter's easel, with geometrical Ferns arranged in flowers. The triangle was made of Lilies. The door money taken in during the first four days was 3053 dols. 80 cents. The proceeds all go to charitable purposes.

□ — "C. B." writes:—"An excellent border plant, affording a very distinct shade of colour, is POLEMONIUM RICHARDSONI, and it thrives so vigorously when once established that no one need experience any difficulty in its cultivation. We have it as a central plant in a small circular bed that has been margined with Primroses, and as these lost their flowers the Polemonium came into flower, and has continued up to the present time to afford a succession of its bluish-mauve round blooms. It lasts well cut and placed in water, but after two or three days the flowers lose their colour and become nearly white."

THE AURICULA.

As I take great interest in all notes on the Auricula I was pleased to read in the Journal on pages 458 and 459, such instructive and interesting lines by "D., Deal," Rev. F. D. Horner, and Mr. T. Pipe. I feel sure

they are much valued by us new beginners, but what delights me most of all is the prospect of having a manual on our favourite flower by such an experienced grower and charming writer as the Rev. F. D. Horner. Let us hope and trust he will favour us in his own good time.

The descriptions of the edged Auricula by the late Rev. Geo. Jeans, twenty-five years ago, would be very interesting if they could be reproduced in the Journal, as suggested by Mr. Horner, and who kindly offers to lend the volumes in which they lie entombed.—C. W.

ROYAL HORTICULTURAL SOCIETY.

JUNE 14TH.

HARDY flowers from Messrs. T. S. Ware and Barr & Son, Pyrethrums from Messrs. Kelway & Son, Orchids from F. G. Tautz, Esq., and miscellaneous contributions from other exhibitors nearly filled the Conservatory and rendered the meeting very interesting.

FRUIT COMMITTEE.—Present: T. Francis Rivers, Esq., in the chair, and Messrs. John Lee, G. T. Miles, W. Warren, J. Fitt, G. Norman, F. Rutland, H. J. Veitch, G. Bunyard, and Harrison Weir. Mr. G. Norman, The Gardens, Hatfield House, Herts, sent thirty fruits of Sir Charles Napier Strawberries, extremely fine and highly coloured, for which a cultural commendation was awarded. These Strawberries were greatly admired by all the horticulturists present. Mr. Norman also had a fruit of Melon Dempsey's Favorite, for which a vote of thanks was accorded. The fruit was a large oval one with yellow flesh.

Messrs. Sutton & Sons, Reading, offered prizes for a pair of Melons, consisting of Sutton's Hero of Loeking and La Favorite. Mr. T. Lockie, The Gardens, Oakley Court, Windsor, was awarded the first prize, and Mr. Ward, gardener to the Earl of Radnor, Longford Castle, was third, the second prize being withheld.

FLORAL COMMITTEE.—Present: Shirley Hibberd, Esq., in the chair, and Messrs. Fraser, Wilks, G. Paul, Herbert, Bradshaw, H. Turner, W. G. Lowe, B. Wynne, R. Dean, Noble, Pilcher, Dominy, Pollett, O'Brien, Lendy, Hill, Henslow, Ballantine, and Duffield.

Groups.—From the Royal Gardens, Kew, came flowers of the peculiar reddish Streptocarpus Dunni, a plant of Oxalis brasiliensis, with bright rose flowers, very free; Wahlenbergia graminifolia, a pretty dwarf plant with small purple flowers; Salvia scapiformis, from Hong Kong, with small ovate leaves, purplish beneath, and numerous spikes of small mauve flowers and reddish calyx, and Onosma taurica, with clear yellow drooping flowers. Mr. T. S. Ware, Tottenham, secured a silver Banksian medal for a large and handsome collection of hardy flowers, comprising Irises, Pyrethrums, and Poppies in variety. Very noticeable amongst the Irises were Gracehus pallida speciosa, Bridesmaid, pallida ramosa, Gazelle, and Victorine. The Pyrethrums comprised numerous fine varieties, large, full, rich, and delicate in colour. The Poppies were chiefly Papaver bracteatum multiflorum, very bright colour, black blotched centre, and free (vote of thanks), with P. nudicaule varieties, yellow, orange, and white. Of miscellaneous plants Anthericum liliastrium majus; Hemerocallis flava; the dark bluish purple Campanula glomerata dahurica; the clear yellow Thermopsis fabacea, and Centaurea montana varieties. Messrs. Barr & Son, Covent Garden, W.C., contributed a magnificent group of Paeonies, Irises, Pyrethrums, Poppies, and miscellaneous hardy plants, arranged with Funkias, Ferns, and a few Palms (silver Banksian medal).

Messrs. Kelway & Son, Langport, were awarded a bronze Banksian medal for a superb collection of Pyrethrums, single and double varieties ten boxes of about sixty blooms each being contributed. Some of the best varieties were—Double: Melton, rich crimson; Aphrodite, pure white; Figaro, rosy crimson; Rembrandt, bright rose; Gustave Hertz, pale rose; Madame Minier, blush; Boule de Neige, pure white, with narrow twisted florets; Empress Queen, tinted with pale pink, very charming. The single varieties were also very bright in colour or pure white.

Orchids.—F. G. Tautz, Esq., Studley House, Hammersmith (gardener, Mr. Cowley), was awarded a silver-gilt Banksian medal for a large group of Orchids and Ferns, comprising Lelia purpurata, Cattleya Mossie and C. Mendelli, C. Wagneri, large and pure, in several fine varieties. Odontoglossum vexillarium was well represented by healthy plants and richly coloured varieties; O. crispum was also well shown. Cypripedium Swamianum; C. caudatum giganteum, very large, with petals 2 feet long; C. Lawrenceanum grandiflorum (vote of thanks) very large flowers, and atro-rubens, dark colour; C. superciliale ornatum, a neat variety. Masdevallias were good, and a plant of Dendrobium Veitchi was included with fusiform pseudo-bulbs, densely hairy pedicels, greenish sepals, dull yellow petals, and a long green lip veined with purple.

Baron Schröder, The Dell, Staines, exhibited plants of Odontoglossum vexillarium radiatum, the lip with dark crimson radiating lines at the base, very distinct; O. vexillarium vestale, pale, nearly white; and Cymbidium Dayanum, with four pendulous racemes of buff and brown flowers, 2 to 2½ feet long. The Duke of Marlborough, Blenheim, sent two varieties of Cattleya Mendeli, one named picturata, with white lips, blotched in the centre with crimson; the other named limbata (vote of thanks), flowers large, petals broad blush-rose, lip broad, rich crimson tip and margin, bronze throat. J. Day, Esq., Tottenham, exhibited a plant of Odontoglossum crispum, var. Wolstenholmei, with well-shaped flowers, heavily blotched with pale brown. Mr. Blair, gardener to the Duke of Sutherland, Trentham, Stoke-upon-Trent, exhibited a variety of Odontoglossum crispum, with nearly brown and purplish blotched flowers. Messrs. F. Sander & Co., St. Albans, showed plants of Odontoglossum crispum albanense, white, spotted and blotched with pale

brown; also a heavily blotched form named Schröderae. E. G. Loder, Esq., Floore, Weedon, exhibited flowers of Cypripedium macranthum of rich colour; C. Calceolus majus, and a scape of Eremurus robustus, white variety, 4 feet long (vote of thanks). Gen. G. S. Berkeley, Sibbertoft, Market Harborough, and R. B. White, Esq., Ardlaroch, Garelochhead, sent plants of Dendrobium polyphlebium, which has been considered to be natural hybrid between D. primum and D. Parishii, sepals and petals rose tinted, lip open, rose centre white margin, pubescent. E. R. Whitwell, Esq., Barton Hall, Darlington, was adjudged a vote of thanks for flowers of Cattleya Mossie and Lilies of the Valley; also for Cattleya labiata Warneri, with broad rose-tinted petals and a neat lip. F. Wigan, Esq., Clare Lawn, East Sheen (gardener, Mr. D. East), showed a raceme of Phalenopsis grandiflora, with very large flowers 3½ inches in diameter, the petals 2½ across. Mr. Wigan also had a pretty variety of Cattleya Mendeli named limbata, the lip margined with purplish-erimson, the sepals and petals tinted with rose, and C. gigas Sanderiana with large handsome flowers. Messrs. Heath & Son, Cheltenham, showed a Cypripedium named Cheltonia, much like C. Lawrenceanum, the petals having dark spots nearly to the tip.

Miscellaneous.—Messrs. J. Veitch & Sons, Chelsea, showed a plant of Anthurium Bakeri with narrow dark green leaves and spadices of bright red fruits, also of Stenogaster concinna (vote of thanks) with small funnel-shaped flowers, white on throat, and purple lobes; very dwarf and neat. Messrs. W. Balchin & Sons, Brighton, were awarded a cultural commendation for a number of extremely healthy well-flowered plants of Lesehenaultia biloba major, laden with brilliant blue flowers. Mr. R. Spink, Victoria Road, Horley, showed several varieties of Carnations. Messrs. J. Carter & Co., High Holborn, were awarded a cultural commendation for a basket of plants of the Edelweiss—Gnaphalium Leontopodium, with large velvety heads of capitulae. Dr. Wallace, Colchester, showed a plant of Blandfordia flammea aurea, with large drooping golden flowers. Messrs. Paul & Son, Cheshunt, exhibited several trusses of Rhododendron Fortunei Mrs. C. Butler, with large open flowers of a delicate blush hue. G. F. Wilson, Esq., F.R.S., Heatherbank, Weybridge Heath, sent a plant of a yellow flowered Primula, something like a drawn P. verticillata. Messrs. H. Collyer and Co., Camden Road Nursery, Tunbridge Wells, showed plants of Ampelopsis Veitchii purpurea, a variety with purplish leaves. Mr. B. Gilbert, Anemone Nurseries, Dyke, Bourne, Lincolnshire, sent flowers of a bright scarlet double Anemone named King of the Scarlets. Mr. Gordon, Twickenham, sent a collection of Tree Paeonies, varied in colours, semi-double, white, pink, and crimson (vote of thanks). Mr. R. Dean, Ealing, had a small group of hardy flowers, including a cross between Chrysanthemum coronarium and C. segetum named Sunbeam, hybrids between Aquilegia glandulosa and chrysantha, and the bright blue Phacelia campanularia.

CERTIFICATED PLANTS.

Masdevallia Harryana luteo-oculata (F. G. Tautz, Esq.).—A handsome variety, rich magenta with a yellow throat, beautifully formed, of medium size.

Cymbidium Dayanum (Baron Schröder).—An effective plant with four pendulous slender racemes, 2 to 2½ feet long, the sepals and petals buff and brown, rather dull colours, but having a peculiar appearance.

Odontoglossum vexillarium radiatum (Baron Schröder).—An extremely distinct variety, with flowers of medium size, the lip having a series of heavy, dark, crimson lines radiating from the base.

Pyrethrum Magicien (Kelway & Son).—Double, of a peculiarly bright pink colour, tipped with gold, neat and pretty.

Pyrethrum Florentina (Kelway & Son).—Double, very handsome, full, broad guard florets, blush, nearly white.

Figaro (Kelway & Son).—Double, rich crimson, outer florets broad, inner small.

Aphrodite (Kelway & Son).—Double, large, full, handsome white broad outer florets, quilled centre.

Pela gonium Duke of Clarence (E. B. Foster, Esq., Clewer Manor, Windsor).—A variety with beautifully formed flowers, symmetrical scarlet lower petals, and dark upper petals.

Isirolini n tataricum (T. S. Ware).—A pretty Amaryllidaceous plant from Turkestan, with long scapes of purple flowers and recurving petals.

Pyrethrum Margaret Moore (T. S. Ware).—A single variety, very large, 3½ inches in diameter, florets broad and thick, pale pink.

Hemerocallis Middendorffiana (T. S. Ware).—Flowers larger than most other forms, more open, and a rich golden colour.

PRIMULA SIEBOLDI AND ITS VARIETIES.

THOSE who have grown the best of our hardy plants for years past will well remember how very modest in number of varieties this little group was twelve or fourteen years ago; they will also not have overlooked what was, and is still, to be considered a drawback to them for general decorative purposes out of doors—i.e., the want of substance in the flowers, and how, after even a slight fall of rain, many seemed to have completely lost what little colour they once possessed. This is a perplexing fact, and one not easily overcome, since we have no control over pelting rain or hail, of which latter we have had an extremely severe example quite recently. This did much damage to this little group, and also to many plants such as Liliums, which in some instances had the foliage cut to fragments, and others such as Funkias had their broad and handsome leaves riddled with holes by the hail-

stones. This is only to be overcome by covering with handlights, or, in fact, introducing them into glass structures, but only such as are unheated. In heated structures they soon become drawn and weakly at the same time losing the colour of their flowers, wherein lies their great charm. Few plants, or rather groups of plants, are more interesting than these, and especially so when among other plants, where their numerous and varying shades are especially valuable in spring time. But while the introduction into glass houses or frames does to some extent destroy the colour of their flowers, it must be borne in mind that at the same time it preserves the flowers from the storms without, and you have clean fresh spikes of some of the most enjoyable flowers of spring.

Taken as a whole, these plants have produced an exceedingly good effect at the recent exhibitions at South Kensington and Regent's Park, and to some extent show the great number of varieties which have resulted from hybridisation. In this direction, however, much remains to be accomplished, and the work of improvement has barely begun. In the first place we stand very much in need of a good and pure white of good habit, with flowers erect or semi-erect, and to obtain this end I would advise all who are making any attempt to improve this group to aim. We have in the variety *Grandiflora alba* a fine pure white in point of colour, but the drooping habit of the plant is much against it becoming popular; in other respects, such as fragrance, its free-flowering and robust habit of growth it is a good plant, in fact much the best white of the present day. I have known it some fifteen years, but I do not know its origin. One thing to avoid in this class, as well as in all other groups of florists' flowers, is the introduction of too many of those invisible shades of colour which too frequently find their distinctive characters merely in wordy descriptions rather than in the plants themselves.

They produce seeds rather freely were on small plants, which if sown as soon as ripe will germinate in about a month, or thereabouts. To the enthusiastic hybridist there is a wide field open for extension with improvement, and new and distinct shades of colour will be welcomed among this already valuable group of hardy spring flowers. When Hyacinths are past these Primulas might well help to fill their place, unless a more brilliant array be needed and afforded by Azaleas, Cinerarias, and the like. There is only one way of increasing the better named varieties, and that is by dividing the rootstock, which in established plants is composed of several small rhizomes thickly studded with fleshy roots throughout their entire length. They submit most readily to this dividing process, which may be done to good advantage when the flowering is completed, or lifted in the autumn when the foliage is decayed they may be divided and potted according to requirements. A well enriched loam with leaf soil added suits them admirably, and if partial shade can be given them so much the better.

The best and most distinct varieties in commerce at present are the type—viz., Sieboldi, magenta crimson; *grandiflora alba*, pure white; *Lilacina*, a very handsome fringed variety; *Magenta Queen*, intense in colouring, and beautifully fringed; *Vincaeflora*, rich lilac; this is much smaller in flower, and very distinct in general appearance from all the others; *Intermedia hybrida*, a very fine variety, flowers rosy lilac externally, and white flushed with rose on the inside; *Lilacina marginata* is dwarfier in habit than some, but has very large handsome trusses of pale lavender flowers externally, while the interior is of a whiter shade and margined with lilac. The numerous other varieties, which I shall refrain from noticing here, have flowers of varying and intermediate shades of the above, which are a selection of the best.—J. H. E.

ROYAL BOTANIC SOCIETY.

JUNE 15TH.

AN extensive and varied show was held in this Society's gardens on Wednesday, plants, flowers, and fruits being largely shown in all the classes. There was not quite so much brilliancy of colour as at the first summer show, but the exhibits were very interesting, and the collections of Irises and hardy flowers most abundant. The weather was exceptionally fine, and a large number of visitors assembled during the afternoon.

ORCHIDS.—A magnificent bank of Orchids was formed on one of the slopes in the centre of the tent, a number of large specimens being shown. There was also a large bank at the side of the tent. In the amateurs' class for twelve Orchids, Mr. J. Douglas, gardener to F. Whitbourn, Esq., Great Gearies, Ilford, won the premier award for *Dendrobium nobile*, loaded with flowers; *Cattleya Mendeli*, with two dozen flowers; *Masdevallia Harryana*, *Odontoglossum vexillarium*, very fine; *O. Roezli album*, in admirable health; *Laelia purpurata*, fourteen flowers; *Odontoglossum crispum*, *Oncidium macranthum*, *Cattleya Mossiae*, and *Cypripedium Lawrenceanum*. Mr. F. J. Hall, gardener to H. Little, Esq., The Barons, Twickenham, was second with very fine specimens of *Cattleya Mossiae*, *Laelia purpurata*, *Cypripedium Lawrenceanum*, and *Cattleya labiata Warneri*. Mr. C. J. Salter, gardener to J. Southgate, Esq., Selborne, Streatham, was third with some very handsome plants, a large pan of *Cypripedium Lawrenceanum* being remarkable, also *Odontoglossum vexillarium*, *Cattleya gigas*, and *Masdevallia Veitchiana grandiflora* with eleven large flowers.

Mr. J. Cypher secured the chief prize in the nurserymen's class for twelve Orchids for *Cattleya Mendeli* and *Mossiae*, *Dendrobium Dalhouseanum*, *Anguloa Clowesi*, *Masdevallia Harryana coerulescens*, *Odontoglossum vexillarium*, *Epidendrum vitellinum*, *Cypripedium barbatum*, *Dendrobium Bensoniae*, and others similarly well flowered. Mr. James was second with healthy and profusely flowered plants.

For twelve Orchids, single specimens, Mr. J. Douglas was first, contributing fine specimens of *Odontoglossum vexillarium* loaded with flowers; *Cymbidium Loweanum*, with four long racemes; *Saccolabium guttatum*, two fine spikes; *Laelia purpurata*, and *Dendrobium mesochlorum*. Mr. F. J. Hill was second, his plants including six *Cattleyas*. Mr. H. James had the only collection of twelve Orchids, single specimens, in the nurserymen's class, small plants but healthy. A small silver medal was awarded to Mr. W. May, gardener to F. C. Jacomb, Esq., Amhurst Park, Stamford Hill, for a beautiful group of Orchids similar to that he had at Leyton recently, and noticed on another page.

STOVE AND GREENHOUSE PLANTS.—The principal class for these was that for twelve specimens, in which Mr. J. Cypher, Cheltenham, won first honours with handsome plants, but not his largest specimens. *Erica Cavendishiana*, some 6 feet high and through, was profusely flowered, other grand plants being *E. depressa*; *Bougainvillea glabra*, very large and beautiful; *Stephanotis floribunda*, *Dracophyllum gracile*, *Ixora Pilgrimi*, and *Aphelexis macrantha purpurea*. Mr. Donald, gardener to J. G. Barclay, Esq., Knotts Green, Leyton, was a close second with very even fresh plants capitally flowered; *Statice profusa* being uncommonly fine, also several excellent Heaths. Mr. H. James, Norwood, was third with good Heaths and other plants. For six plants Mr. Donald was first with neat globular specimens of *Erica Paxtoni*, *Aphelexis purpurea*, *Dracophyllum gracile*, and others; Mr. A. Offer, gardener to J. Warren, Esq., Handcross Park, Crawley, was second, and Mr. G. Wheeler, St. John's Lodge, Regent's Park, was third. In the nurserymen's class for six plants Mr. H. James took the lead, showing an excellent sample of *Erica Massoni* major well flowered. Mr. J. Cypher was a very close second with medium-sized but even and fresh plants, *Erica ventricosa magnifica* being noteworthy for its number of flowers and their rich colour, *Aphelexis macrantha purpurea* was also good.

Pelargoniums.—Two beautiful corner groups of *Pelargoniums* were formed of the competing collections. Mr. C. Turner, Slough, was first with six show varieties, handsome specimens of *Amethyst*, *Comtesse de Choiseul*, *Gold Mine*, *The Baron*, *Maid of Honour*, and *Sister of Mercy*. Mr. Turner was also first with six fancy varieties, delightfully fresh, profusely flowered plants of *East Lynne*, *The Shah*, *Mrs. Langtry*, *Ellen Beck*, *Princess Teck*, and *Fanny Gair*. Mr. J. Cypher was second with six show varieties, *Duchess of Bedford* and *Lady Isabel* being the most noteworthy. In the amateurs' class Mr. F. J. Hill was first with show varieties, satisfactory specimens of good varieties, and second with fancies, *Delicatum* being a magnificent plant. Mr. D. Phillips, gardener, Langley Broom, Slough, was first with medium sized but excellent fancy varieties, and second with show varieties, having *Mauve Queen* in capital form. The prizes for Zonals were gained by Messrs. H. Eason, F. J. Hill, and H. Rowson.

Tuberous Begonias.—Messrs. J. Laing & Co., Forest Hill, were accorded chief honours for twelve *Tuberous Begonias*, representing some of their superb varieties with large brightly coloured flowers. The varieties were *Marchioness of Teck*, *Ball of Fire*, *Lady Chesterfield*, *Earl of Rosslyn*, *Lady Falmouth*, *Bicolor*, *Queen Victoria*, *Primrose Queen*, *Lady Brooke*, *Sarah J. Reed*, *Virgin Queen*, and *Marquis of Bute*. The third prize was awarded to Mr. W. Windsor, gardener to W. H. Williams, Esq., The Chantry, Enfield, for small plants. Classes were provided for nineteenth century plants, but only one collection of annuals and herbaceous plants was shown, for which Messrs. Paul and Son, Cheshunt, obtained the first prize. Large numbers of plants were represented, including some of the most showy of the hardy plants now in cultivation.

Foliage plants and Ferns were chiefly shown by Mr. J. Cypher, who had some huge Palms, Cycads, and Crotons. Mr. Offer had similarly large specimens. Mr. Donald, Mr. H. James, Mr. R. Butler, and Mr. Eason were also prizetakers.

FRUIT.—There was a good display of fruit for the season, and the competition in the leading classes was keen. In the Fruiterer's Company's class for a collection, Mr. R. Parker, gardener to J. Corbett, Esq., M.P., Impney, Droitwich, was a capital first with three even bunches of *Black Hamburg Grapes*, well-coloured large bunches of *Foster's Seedling Grape*, a good *Queen Pine*, *Elruge Nectarines*; *Best of All*, *Scarlet Premier*, and *Cox's Orange Gem Melons*; *Noblesse Peaches*, excellent; *President*, *Sir Joseph Paxton*, and *British Queen Strawberries*; *Belle d'Orleans* and *Early Red Bigarreau Cherries*, and *Brown Turkey Figs*. There was an admirable collection, distinguished by the even quality of the fruit, and one of the best we have seen at such early shows. Mr. T. Hare, Wellington Gardens, Grantham, was second, also with good specimens of *Black Hamburg Grapes*, but rather smaller; *Duke of Buccleuch Grapes*, good bunches and berries, but slightly green; *Murrey Nectarines*, of fine colour; *Black Tartarian* and *Elton Cherries*; *Early Albert* and *Early Louise Peaches*, fine; *Longleaf Perfection*, *Dell's Hybrid*, and a seedling Melon; *Sir Joseph Paxton Strawberries*, and *Brown Turkey Figs*. Mr. W. Robins, gardener to Colonel Lee, Hartwell House, Aylesbury, was third, showing excellent *Hero of Lockinge Melons*, seven dishes of *Peaches* and four of *Nectarines*, with large bunches of *Foster's Seedling Grapes*, and small ones of *Black Hamburg* and *Buckland Sweetwater*.

With *Melons* Mr. Parker was first for *Blenheim Orange* and *Best of All*, followed by Mr. W. F. Smith, Nevill Court Gardens, Tunbridge Wells, and Mr. Hollingsworth, gardener to J. F. Campbell, Esq., Woodseat, Uttoxeter. For *Pines*, Mr. H. W. Ward, gardener to the Earl of Radnor, Longford Castle, Salisbury, was first with a good *Queen*, Mr. W. F. Smith being second, and Mr. R. Parker third.

Four baskets of black Grapes were entered, Mr. J. Hollingsworth

being first, Mr. Osman, gardener to L. J. Baker, Esq., Ottershaw Park, Chertsey, second, and Mr. G. Clinging, gardener to Walpole Greenwell, Esq., Marden Park, Caterham Valley, third, all showing Black Hamburgh well coloured. There were three baskets of white Grapes, Mr. P. Feist, gardener to R. J. Ashton, Esq., Bishopsgate House, Staines, leading with Muscat of Alexandria, very good for the season; Mr. Hollingsworth was second with Foster's Seedling, and Mr. W. Robins third with the same variety. Several competitors with three bunches of Black Hamburgh entered, Mr. Hollingsworth leading with beautiful even bunches bearing an excellent bloom; Mr. T. Osman was second and Mr. A. Smith third. Of any other black variety there were only two exhibitors, Mr. H. W. Ward, who was second with Black Prince, small, but of good colour, and Mr. J. Wallis, gardener to the Rev. W. Sneyd, Keele Hall, Newcastle, third, with Madresfield Court deficient in colour.

In the white Grape classes, Mr. Feist was first with three bunches of Muscat of Alexandria, of good size in bunch and berry, and fairly coloured. Mr. Ward was second, the others being too green for a prize. Of the five exhibitors of any other variety, Mr. Ward was first with Buckland Sweetwater; Mr. Hollingsworth second with Foster's Seedling, and Mr. Robins third with Buckland Sweetwater. Mr. W. H. Divers, gardener to J. F. Hopwood, Esq., Ketton Hall, Stamford, was first with two dishes of Peaches, Early Albert and Royal George, very fine; Messrs. J. Harris and W. Robins following. Mr. Harris was first with two dishes of Nectarines, Elruge being very fine, and Mr. Robins second. Strawberries were not of first-rate quality. Mr. Parker was first with Figs, and Mr. Hare with Cherries, followed by Mr. Parker. Messrs. T. Rivers & Son, Sawbridgeworth, had a collection of Plums, Peaches, Nectarines, and Cherries.

CUT FLOWERS.—Cut flowers were very numerous, Mr. J. R. Tranter, Mr. J. Hollingsworth, and Mr. A. Gibson securing first prizes for Roses. Mr. Gibson and Mr. Bates exhibited miscellaneous cut flowers. Mr. J. Douglas was first with twelve trusses of Orchids, Mr. Turner with show Pelargoniums, and Mr. Phillips with Zonal Pelargoniums. Messrs. Paul and Son, Cheshunt; Mr. T. S. Ware, Tottenham; with Messrs. Collins Bros. & Gabriel, Waterloo Road, had large collections of Irises and hardy flowers.

MISCELLANEOUS.—Messrs. J. Laing & Co., Forest Hill, staged a magnificent group of Tuberous Begonias, Orchids, Ferns, Palms, with a neat margin of Selaginella and Caladium argyrites (large silver medal). Messrs. Hooper & Co., Covent Garden, had a large and beautiful miscellaneous group of flowering and fine-foliage plants (large silver medal). Mr. H. B. May, Edmonton, showed a charmingly fresh group of Ferns and Crotons very tastefully arranged (small silver medal). Mr. G. Elliott, gardener to W. F. Darnell, Esq., Devonshire House, Stamford Hill, contributed a choice group of well grown Orchids and Ferns, tastefully arranged (small silver medal). Messrs. Balchin & Son, Brighton, had some fine plants of Lesechenaultia biloba major (cultural commendation). Mr. W. Chitty, Stamford Hill, showed plants of a very dark Coleus with yellow and red centre.

The Comte de Paris, Sheen House, Surrey, exhibited a collection of Orchids grown in the gardens at the Château d'Eu, France, either in the open air or in a cool house. They comprised the following interesting species—*Aceras anthropophora*, *Cypripedium spectabile*, *Serapia Lingua*, *Ophrys tenthredinifera*, *Serapias pseudo-cordigera*, *Ophrys bombylifera*, *Cephalanthera ensifolia*, *Ophrys fusca*, *Orchis longicornu*, *Orchis fusca*, *Orchis tephrosanthos*, *Orchis militaris*, *Ophrys lutea*, *O. Speculum*, *Cypripedium pubescens*, *Bletia hyacinthina*, *Orchis maseula*, and *O. maculata*. Mr. G. Wheeler had a group of Fuchsias (certificate). Messrs. J. Veitch & Sons, Chelsea, had a choice collection of new plants, several of which were certificated. Messrs. Paul and Son, Cheshunt, showed a collection of Pyrethrums and Rhododendrons. Mr. W. Gordon, Twickenham, had a collection of Pæonies and Maples. Mr. D. White, gardener to Mrs. Farnell Watson, Redlee, Isleworth, had a group of fine *Calcicolarias* (bronze medal). Mr. T. S. Ware, Tottenham, had a magnificent display of hardy flowers and Pyrethrums in the corridor (large bronze medal). Messrs. Kelway and Son, Langport, had ten boxes of Pyrethrum flowers. Mr. John Forbes, Hawick, exhibited twelve stands of Pansy blooms, representing a large number of superb varieties (certificate).

Messrs. T. Rivers & Son, Sawbridgeworth, had a most interesting group of fruit trees, comprising Peaches, Nectarines, Cherries, Plums, Apples, Pears, and Oranges, bearing a large number of fruits and representing some first-rate varieties. Mr. A. Luff, Streatham, had a large handsome group of Gloxinias and Ferns (small silver medal). Messrs. Hooper & Co., Covent Garden, had a group of Irises and hardy flowers (bronze medal). Messrs. Barr & Son showed an extensive collection of Irises and miscellaneous hardy flowers (large bronze medal).

First-class certificates were awarded to the following:—Florists' flowers.—E. B. Foster, Esq., for Pelargonium Marion and Duke of Clarence; Messrs. J. Laing & Co. for Tuberous Begonias, Duke of Edinburgh, Duchess of Edinburgh, Princess Louise, Scarlet Perfection, Terra Cotta, Marguerita, and Alba Magna, Mrs. Apthorpe, and Princess Royal; Mr. Charles Turner for Pelargonium Iona and Ambassador; Messrs. Kelway & Son for Pyrethrums, Merry Hampton, Florentine, Magicien, Aphrodite, and Figaro.

New Plants.—Messrs. J. Veitch & Sons for *Rhododendron luteo-roseum*, *Adiantum Capillus-Veneris* var. *Mariesi*, *Diplazium hians*, *Juniperus canadensis aurea*, *Abies canadensis argentea*, *A. excelsa mutabilis*, *Thuja gigantea aurea*, *Ilex aquifolium insignis*, *Sequoia sempervirens alba spica*, *Viburnum plicatum*. Mr. Blair Trentham Gardens, *Odon- toglossum crispum* Blair's var.; R. B. White, Esq., *Dendrobium poly-*

phlebium. Messrs. Sander & Co., Masdevallia *Harryana grandis*, *Odon- toglossum crispum albanense*. Mr. Bethell, Cattleya *Mendeli limbata*. Mr. W. Chitty, *Coleus Jubilee*.



KITCHEN GARDEN.

YOUNG VEGETABLES.—The weather during the last fortnight has improved wonderfully; we have had refreshing rain, balmy nights, and sunny days, and all kinds of vegetables have made more progress than they did for a month previous. Outdoor Potatoes are abundant and good in quality, Peas are now well in, and Carrots, Turnips, and such like are excellent. There is no time in the whole year when vegetables are more appreciated than at present, and although they take considerable labour and much anxiety to produce them, the satisfaction they give more than compensates for all this.

LATE PEAS.—A large sowing of Sutton's Latest of All, Laxton's Omega, or Ne Plus Ultra, should be made now. It is a mistake to sow late Peas earlier than this, as they pod before September is over, and by October they are gone, but by sowing now they will continue to bear until destroyed by frost. They are very apt to suffer from the hot dry weather of July and August, and to avoid this form trenches to the depth of 1 foot, manure them well, and then sow the seed, cover with 3 inches depth of soil and tread well, as firm soil does not dry as soon as when it is very loose. The best position for late Peas is well in the light and sun and where the autumn winds will not upset them.

LETTUCE.—Early Paris Market is still our first to gain maturity. It is very useful in the spring months, but the best of all our Lettuces at the present time is Veitch's Perfect Gem. It is a Cabbage variety of compact growth, great size, and first-rate quality. It merits its name. All Lettuces that are now planted will mature before the end of July; transplant more small ones to come in during August, and sow more seed to produce plants for use in September. Very often Lettuces are plentiful in the forepart of the summer, but by September, or before that, they are over, and this is not desirable. Successional sowings would remedy this; give them all a rich soil and a cool place. Winter Lettuces should not be sown until August.

EARLY LEEKS AND CELERY.—These were planted in trenches about the same time; they have all grown freely, and it is time to take their culture in hand. Weed the whole of the trenches carefully, tread the soil very firmly round each plant, then place a little good manure on the surface and water thoroughly. In a day or two afterwards begin to earth them up. Break a little soil down from the edges of the trenches and draw it towards the plants with the spade, then put it round them with the hands. If they are earthed up 3 inches at a time good results will follow. This way of treating these vegetables is a capital one to secure large substantial produce for exhibition or any purpose, and to insure success do not neglect them from now onwards.

BROAD BEANS.—Seville Longpod is ready for the kitchen, Carter's Leviathan is forming pods, and more of the same excellent sort has not come into flower, but a supply is insured until the end of July at least, and as many have Broad Beans until then, few afterwards, they would find a late sowing very satisfactory. They take about the same time to reach maturity as the Peas, and a sowing now would be in at a good time. Give them very strong soil well manured, and do not crowd them. Where the first sowing is longer in podding than is desired pinch the tops off at once. They generally flower best on the lower part of the stem; there may be no blooms near the top, and it is this part which should be pinched off.

WINTER GREENS.—The last of our Broccoli was cut on June 10th. The variety was Veitch's Model, a superb sort. The ground has been manured, dug deeply, and is now ready for late Peas; but young Broccoli, Brussels Sprouts, Savoys, and Winter Greens of all sorts are being planted in other parts of the garden, and these should now receive attention. It is almost impossible to have too many of them, but it is astonishing how many can be planted by perseverance and constantly filling up vacancies as other crops are cleared off. This is really the secret of having plenty of Winter Greens.

TURNIPS.—We have these all the year round. They are sent to the kitchen daily. Our Swedes, sown at this time last year, were not finished when the early Milans were ready, but the cook would have nothing to do with the old ones when the young ones were ready, but it is very satisfactory to have an unbroken supply. All winter Turnips should now be sown. It is a good plan to sow three varieties now—Veitch's Red Globe or some of the white ones for autumn use; Chirk Castle or Orange Jelly for winter; and the Swede for spring.

FRUIT FORCING.

VINES.—*Late Houses.*—Let there be no delay in thinning late Grapes. In order to secure large highly finished berries thin them well, especially in the interior of the bunches, and do not overcrop, as Vines that are overburdened never finish their fruit well, and it is inferior in keeping qualities. Outside borders, now that the weather is more favourable, should, if the rainfall be insufficient, be well watered and mulched with short material, so as to attract the roots to the surface. Allowing

the border to become dry at the surface causes the roots to descend in quest of moisture, and the consequence is that in a cold and wet season the Vines start very badly; the bunches, instead of elongating, curl, twist and wither, or if they escape they are often spoiled through shanking. Neglect in watering the borders and mulching, especially where the Vines are carrying a heavy crop, is not only disastrous to the present crop, but induces red spider and the premature ripening of the foliage, and injuriously affects next year's crop of fruit. The cold nights still necessitate the use of fires. It is a great mistake to let the fires out now and have to employ them later on to have the fruit ripe; indeed, if they are not ripe by the middle of September their keeping is extremely problematical. All late Grapes thrive in a high temperature with abundant food in liquid form, both at the roots and in the atmosphere. Fire heat should be employed to secure a night temperature of 65° to 70°, and 70° to 75° by day in dull weather. Admit, or rather increase, the ventilation from 75°—a little at first, increasing it with the temperature, allowing an advance to and maintaining it at 80°, 85°, or 90° through the day from sun heat, closing the house between 80° and 85°, damping the paths, &c., well at closing and again before night-fall, at the latter time with liquid manure. Provide a little ventilation the last thing at night, which will prevent a vitiated atmosphere and allow the foliage to dry in the morning by the time the sun acts powerfully. Late Grapes generally are backward, hence the desirability of making the most of the solar heat by the judicious application of artificial heat as may be necessary. Allow all the foliage that can be fully exposed to light, but when the space is fairly covered keep the shoots closely pinched. Avoid cold draughts or sudden depressions of temperature, the most prolific source of rust.

Newly Planted Vines.—These are growing freely, and should have every encouragement to make a sturdy thoroughly solidified growth. The borders will need copious supplies of water, but avoid making the soil sodden by needless waterings, mulching the surface of the borders so as to encourage surface roots, and especially rootlets from the collar. Syringe copiously on fine afternoons, and close early, allowing the laterals to extend freely. Supernumeraries intended to fruit next season should have the laterals stopped at the first joint, and the primary at the first six or eight feet of growth, after which moderate lateral extension may be allowed, but there must not be any interference with the principal leaves, which must have full exposure, and be kept clean and healthy, so as to insure the proper development of the buds at their base.

PINES.—Fire heat will not be necessary now for successional stock except in particularly cold localities, for sufficient heat will be maintained to secure the steady growth of the plants, or a temperature of 65° at night, if attention be given to ventilation in the daytime, which is very necessary to secure sturdy growth. Admit air at 75° if the morning be bright, gradually increasing it until the temperature reaches 85°, when full ventilation will be required. Reduce the air gradually, keeping the heat up to 80° as long as possible, at which close, affording the plants a light sprinkling overhead when the weather is bright. It will still be necessary to afford the needful warmth to the roots of the plants—viz., 80° to 90°, and to accelerate plants in an advanced fruiting stage in houses, the bottom heat of which is furnished by hot-water pipes. The earliest fruiting plants will now, or soon, furnish a number of suckers, which should be taken off and started at once. These will form a supplementary batch to those started in March. They must be watered at once if the soil be dry, and shade afforded from bright sun until they are well rooted.

MELONS.—Some consider Melons are worth little after the hot days of summer, but they are often good when the days are bright in September and October. Every available frame, pit, or house should be utilised, and where there is likely to be a demand for fruit in late summer plants that were raised some time ago should be placed out now, they will set freely in the dog days, and afford very acceptable fruit in late August and September. A last sowing should be made for growing in dung-heated pits or frames. It is advisable to make up the beds at once, or at the same time as the seed is sown, which should be in 4-inch pots about half filled with soil. One or two seeds may be placed in each pot, and soil placed around the stem as the plants advance, but not higher than half an inch of the seed leaves. When the fruiting bed is ready turn the plants out of the pots, place one in the centre of each light, planting to within half an inch of the seed leaves, with the soil inclining from the stem, give a good watering, and shade from bright sun. Pinch out the point of the leader at the second rough leaf, which will induce side shoots; reduce those to four, take two to the front and two to the back of the frame or pit, rubbing off all the laterals to within 9 inches of the stem all round, and every lateral upon the primary shoots, stopping those about 9 inches from the sides of the pit or frame. The plants will be showing and setting fruit in plenty early in August, and they will ripen in late September. All the stopping and disbudding must be done whilst the plants are small, for large reductions of growth only tend to grossness in the parts retained, and are unfavourable to the setting of the crop. Husband sun heat by early closing, employ no more shade than is absolutely necessary, but with the soil firm and stiff shading will not be needed if the plants are duly supplied with water.

CUCUMBERS.—As soon as the night temperature can be maintained from falling below 65°, fire heat may be dispensed with, much being effected by early closing. Continue to look over the plants bi-weekly, well thinning-out the old growths, and giving copious supplies of liquid manure twice a week. Only syringe in the afternoon, as with bright

weather morning syringing is often the cause of much injury to the foliage. Maintain a good moisture in the house all through the day. With early closing it is necessary to guard against scorching in the afternoon, particularly where the ends of span-roofed houses are north and south, and where the non-ventilating system is practised. From 4 to 5 or 5.30 is the time of danger, but a slight shading will make all safe.

Night covering will not now be necessary for pits and frames, closing at 3 to 4 P.M., assisting plants in full bearing with liquid manure, taking care not to wet the foliage. Remove bad leaves as well as exhausted growths, thinning the shoots once a week, stopping the growths at one or two joints beyond the fruit; and where the plants are enfeebled by bearing, top-dress with lumpy loam and layer some of the younger growths at a joint, from which roots will be emitted and strengthen the succeeding growths.

PLANT HOUSES.

Primulas.—Frame room will now be plentiful, and the earliest plants should be transferred from the small pots to 5-inch pots. The seed and small lower leaves should be removed and the plants potted as deeply in the soil as practicable without fear of injury to the heart of the plant. It is a great mistake in potting these plants to leave them when finished so that they shake about at the collar. Plants in this condition generally damp off in winter much sooner than those given the chance of emitting roots from the stem. Press the soil firmly into the pots, and use for a compost two-thirds good fibry loam to one-third of leaf mould; one-seventh of decayed manure may be added and a liberal dash of sand. The plants should occupy cold frames with the pots stood upon ashes. The frame should be so arranged that the full force of the sun will not strike upon the plants. Later plants should be transferred from pans into small pots singly and grown under cool frame treatment. The latest intended for spring flowering should be pricked out of the seed pot or pan into others 1 inch apart until they are ready for small pots.

Double Varieties.—Those rooted some time ago may be placed into 4-inch pots and grown on in cold frames. Those that were earthed up later in the season to induce the emission of roots from the stem may now be divided and potted singly in small pots. These must be kept close for ten days or a fortnight until they have commenced rooting in the new soil, when they may be gradually hardened and grown in cold frames.

Roses.—Plunge Hybrid Perpetuals in a sunny position if they have been thoroughly hardened for turning outside; if not, carefully prepare them before placing them out, so that the whole of their foliage can be preserved in good condition. The soil about the roots should be in a thoroughly moist condition when they are plunged, and very little labour will be occasioned in watering afterwards, provided the plunging material is kept moist, and the plants liberally syringed twice a day. Under these conditions they will soon commence in earnest the formation of fresh roots, and a good top growth will result. If this be encouraged it will add strength and vigour to the plants, whereby they thoroughly recruit themselves for the following season. Those potted in autumn into 6 and 7 inch pots, and brought forward in cold frames, may, if they have flowered and grown well, be transferred into pots 2 inches larger. These may then be plunged outside. By potting these plants now they will become thoroughly established, and be in the best possible condition for flowering early under glass another season. Those that have not yet flowered should be kept as cool as possible, so that the supply will be continued until blooms can be gathered outside. After flowering, these can be repotted and treated the same as advised for those that flowered earlier in the year.

Tra Varieties.—No artificial heat will now be needed for the Rose house proper. Abundance of air must be given during the day, or the temperature of the house will rise too high and the plants become infested with red spider. A free sturdy growth must be encouraged by syringing the plants liberally and keeping them supplied with water at their roots. Weak stimulants may be given with advantage every alternate time water is needed. With care and good treatment the plants will continue growing, and yield for some time a bountiful supply of flowers. Those in pots that occupy the side stages of the house, and have done duty since last November, may be thoroughly hardened and stood outside or plunged; the latter is decidedly the best. Youngstock potted in autumn from the open ground, or small plants on their own roots that have been in cold frames up to the present time and just coming into flower, may occupy the side stages of the Rose house. As soon as the first blooms are removed from these plants they may be repotted, if they are healthy and have done well. Under these conditions they will grow rapidly and make splendid plants by autumn, and can then be allowed to come into bloom to maintain the supply when those outside fail. Not only will they yield useful material for cutting at that dull period of the year, but if pruned moderately hard back, will flower profusely again during the months of March and April. Young stock rooted this spring may be placed into 6-inch pots and grown from this date in the Rose house. The flower buds as they appear should be removed, so that the young plants have an opportunity of gaining strength and vigour. These will also be found most useful in autumn, and will continue to flower until Christmas. When ventilation is abundant aphides are perhaps more troublesome than at any other period of the year. The plants must not become infested, or else their growth will soon be brought to a standstill. The quickest method of eradicating these pests is to fumigate the house with tobacco smoke directly they make their appearance.

THE FLOWER GARDEN AND PLEASURE GROUND.

Mixed Flower Beds.—Where a considerable number of beds have to be filled it often happens there is a scarcity of plants towards the finish, and rather than plant too thinly it is advisable to put out various kinds not originally intended for the flower garden. Really attractive beds may be formed with a judicious mixture of old plants of *Fuchsias*, *Plumbago capensis*, *Marguerites*, *Abutilons*, double and single *Zonal Pelargoniums*, *Erythrina crista galli*, *Heliotropes*, *Cannas*, *Tuberous Begonias*, *Yuccas*, *Cordylines*, *Musas*, and *Palms*. Sheltered borders or beds are preferable for this style, and the plants being put out according to their respective heights in a fairly rich and light soil will usually succeed admirably. The more valuable *Palms*, *Cordylines*, and *Yuccas* may well be kept in their pots and plunged. All should be in a moist state at the roots when planted, should have the soil well packed about the roots, and the old balls must not be allowed to get very dry, or failure will be the consequence. On one occasion when the stock of small plants were exhausted two large beds were filled very effectively and cheaply as follows:—We divided a lot of old plants of *Stachys lanata*, and with these formed a broad edging next the grass. Inside of this was planted a number of large old plants of semi-double *Zonal Pelargoniums*, *Guillon Mangilli*, disposed in a sloping direction so as to admit of their being pegged down, the centre of the bed being filled with yellow *Marguerites*, among which were dotted a few plants of *Ricinus Gibsoni*, white *Marguerites*, or the single *Dahlia alba*. The latter being pegged down might be substituted for the yellow *Marguerites*, and the second be banded by any sort of *Zonal Pelargonium*. Much depends upon the way in which the work is done, as when planted in an haphazard fashion it is almost impossible to properly cover the ground.

Carpet Beds.—By the time the hardier bedding plants are in position the time will have arrived for filling in the figures, already outlined on the carpet beds, with the somewhat delicate *Alternantheras* and other coloured plants used. Those who have not yet made a start are advised to give plenty of time to the work, as unless well done carpet beds are unattractive. The surface should be made perfectly level, and the edges of the beds be raised well above the turf and covered either with *Echeveria secunda glauca* facing outwards, or, failing these, with such neat-growing plants as *Antennaria tomentosa* and *Sedum glaucum*. The figures in the design should be well defined and simple rather than intricate; the latter looking well on paper, but are seldom effective on the ground. The better to preserve these finely marked lines, they may be rendered conspicuous with the aid of a little silver sand. Tiny plants of *Golden Pyrethrum* dibbled out about 2 inches apart may well be used for the outline of the figures, the centres being filled in with *Alternantheras*, *Leucophiton*, and other neat-growing plants available. The trowel disturbs the ground too much during the process of planting, and it is advisable to do the work principally with the hand. The groundwork or spaces surrounding the figures of the design should be covered with very close-growing plants, such as *Herniaria glabra* and the golden form, *Sedum lydium*, *Sedum glaucum*, *Antennaria tomentosa*, *Veronica repens*, and *Mentha pulegium gibraltarica*. They must not be planted in large patches, but should be freely divided, quite small pieces soon becoming established, and if they are pressed into the ground rather thickly and watered a few times, a neat well-covered surface is quickly obtained.

Watering Bedding Plants.—The owners of small gardens especially are in the habit of freely watering their beds—this, in sunny weather, being a daily process. Pond water being available this may answer fairly well, but when very hard and cold water is applied more harm than good results from these drenchings. When planting in succession to Wall-flowers, Forget-me-nots, and other soil-improvers it is advisable to well moisten the ground if possible with liquid manure a few hours prior to planting, and after the plants are in position another watering is necessary to fix the soil about the roots. Subsequently no heavy waterings should be given unless the ground is found to be really approaching dryness, but overhead waterings may be given in the evenings of hot days with advantage. Rather than to be continually saturating the ground, thereby both cooling and impoverishing it, we prefer to lightly shade any plants that flag badly at the outset. Those planted from small pots do not need this temporary shading of tree branches, but *Pyrethrums*, *Verbenas*, *Lobelias*, *Stocks*, *Asters*, in fact anything moved from boxes, are usually benefited by it. After the ground has been stirred with a flat hoe and levelled about the plants it is a good plan to mulch with leaf soil, fine peat, cocoa-nut fibre, or grass from the mowing machine. This encloses the moisture, does away with the necessity of frequent waterings, and preserves a neat appearance. Such moisture-loving plants as *Violas*, *Tuberous Begonias*, and *Verbenas* ought to have the ground well enriched for them, occasional waterings in hot weather also being beneficial. Planted on poor ground no amount of water will insure a healthy growth.

THE BEE-KEEPER.

APIARIAN NOTES. MOVING BEES.

AFTER a swarm of bees was transposed in November, several bees returned to their original stand in the spring, and many would

have been lost had I not removed them. On a warm day when the bees are flying, a hive may be removed many yards distance, and if no other hive intervenes the bees will search it out, mark their new site, and return unerringly to it in a few hours after if done early in the day. If any hives intervene the movement will result in a failure. The summer time, as stated above, is, with the exception of moving backwards short distances, the only safe way to move bees, and at no other time of the year should it be attempted unless they are moved some miles distant, remaining until they are fully accustomed to their new site and have forgotten their old one, which, as a rule, may be said to do in not less than eight weeks.

CYPRIANS.

These crosses have been extra busy of late, and appearingly determined not to lose any of their reputation for their good qualities they have previously won. Like all the others, they have many young bees, having bred as usual without stimulating, neither requiring it, nor does the withholding it prevent Nature taking its course. Bee-keepers may note that to their own advantage by lessening not only labour but appliances. "Are these Cyprians not very vicious?" queried a visitor to-day. "Oh, not at all," I rejoined. From what I have written about the doings of the Syrian races appears to have frightened many at their very name, but I assure all such, if they but adopt the hives I have described and manipulate according to my instructions, they are quite manageable, and if the Syrians are somewhat fiery adopt the Cyprians.

FLOORBOARDS.

These should be regularly cleared of all debris, which should be destroyed out of the reach of bees. Those having ventilating floors should make frequent examinations of the shutter, removing from it debris, and along with it all mites and parasites.

QUEENS.

Very often a little before a queen is deposed she lays excessively, so if any aged queens are observed to do this, supersede her as early as possible by introducing a young fertilised one. It is erroneously stated that a queen bee is at her best when she is three years of age. She is nothing of the sort. A queen bee is in her prime a few days after she is fertilised, and may continue so for about a year, after which she decreases in fertility, with a great risk of being deposed at any time. For about a quarter of a century past I can only recall the loss of one yearling queen before June. The average loss of two-year-olds for the same time has been about 30 per cent., three-year-olds as high as 80 per cent., and rarely have four-year-olds lived to do any service. Several times I have had Ligurian queens at the age of fully six years, and which bred seven seasons, but experience has taught me to rely on none but yearlings. The study and management of bees at the present day with the new varieties is a very different thing from what it was when nothing but the common black bee was kept, and if we wish to be successful we must adapt ourselves and appliances to their requirements.

DOUBLE VERSUS SINGLE WALLED HIVES.

During the past few weeks I have about fifty letters from bee-keepers expressing their opinion and experience, and without exception all of them declare in favour of single cased hives, which I concur in and endorse the sentiment. It is now nearly thirty years since my first letter appeared in *The Cottage Gardener*, and my opinion has never changed on the way to manage bees. I pursued a course of my own, and I now reap the pleasure of seeing others following the advice of—A LANARKSHIRE BEE-KEEPER.

DISEASED BEES.

By this post I send you some bees picked up before a hive this morning, and shall be glad if you can tell me what is amiss. So far as I can see they are fully developed, but lack the power of flight. On warm, especially bright sunshiny days, literally thousands come out of the hive and dropping from the fly board run about the garden making frantic efforts to rise, but cannot do so, while others climb the young Fennel plants (a bed of which is immediately in front of the hive), and hang listlessly about; and a very large number unable to return to the hive are killed by the dew. An old bee-keeper examined the hive on Saturday, but could not account for it.

The swarm is moderately strong, and the queen must be particularly vigorous, for the hive is full of brood—both worker and drone—in all stages of development. There is, however, very little honey, and although the swarm has been working for some weeks no new comb has been made this season. The hive is a wooden bar-framed one and is raised about a foot from the ground facing south-east, and is very well screened. I only had the hive in February, and was told that a new

queen was added last season when all was well. As the supply of food ran out feeding was resorted to, and although not freely supplied I believe a sufficient quantity was given. The syrup given was made from receipt in Taylor's "Bee-keeper's Manual." Can it be that the young brood was insufficiently fed in the early spring, or is there perhaps some malformation in the queen? Would it be advisable to remove her and place a frame containing newly laid eggs from another hive inside? If you can give me any explanation or advice I shall be much obliged. Some of the bees are alive now when being taken to post, the swarm to all outward appearance is working hard, and the hive is quite sweet.—R. T.

[The bees sent are evidently not all from the same hive, as several pairs were attached to each other by the sting in deadly embrace, both having lost their life through the stinging. Then there are other bees with empty stomachs that may have died through want or had been compelled to disgorge all its honey to a robber bee, and the result would be the same. The third and larger number of bees, which may be young ones (but have not that appearance), have their stomachs and intestines full of pollen. When that occurs, and bees rallying on a day chilly to the bees, many (young ones particularly) are unable to recover their strength to enable them to discharge feces and present the appearance you describe.

"There is, however, very little honey," is an indefinite term to use to indicate the proper state of your hive. You should have stated definitely the approximate weight, but from what you say we are inclined to think the bees lack food, which should be supplied at once while changeable weather continues. We do not think that bees would suffer now from a scarcity of meat in early spring, although we are satisfied that if bees are fed on nothing but sugar for some years, as they were about 1859 to 1861, they are weakened, although they do not seem to suffer at any other time when feeding does not extend over one year.

There is no necessity to depose the queen at present, but it is advisable to keep nothing but young ones for next year's work, or even late summer or autumn. The bees do not appear to have died from any disease further than stated; certainly neither chloric dropsical fever nor the mysterious disease that attacks the bees annually at Greenock and other places about this time of the year. Our own apiary has had an entire immunity from disease or mysterious killed bees, but in my neighbour's garden hundreds of thousands have been killed, very probably bees from a dwindling apiary about half a mile distant. Certainly they are neither his own nor my bees, although it is not always the invading bees that are destroyed, and hives attacked by them suffer much. After bees have been confined to their hives two or three weeks during summer through stress of weather, we have seen great numbers of worn-out bees deposited in a few hours. When hives are cooled by any manipulation or loss of adult bees through a low temperature, the young bees are feeble as in your case, and many of them are lost through retarded hatching and general weakness through cold.

An acquaintance this year added a pretty white comb of worker cells to the hive, putting it in the centre. The result was that two full combs of brood were chilled and part of the other two through the operation. He will not attempt brood-spreading again, although at the time he performed it seemed favourable, the weather suddenly became wintry. At the same time we had a Syrian hive requiring more room, and we added two combs to the outside, resulting in a large quantity of larvae being destroyed. In a future article we will give our advice and experience on this point, but we hope the fine weather will soon chase away all signs of disease in the apiary, and the bees will fill their hives with honey.]

DISEASES OF BEES.

THE bees sent to me by "A. L. B." were affected with what the German bee-keepers call *maikrankheit*; that is to say, "May disease," from the month in which it occurs. There was a strong fœcal odour, the abdomens were distended, and I found the intestines clogged with what was evidently a mixture of honey and pollen in a state of putrefaction. The disease is supposed to be due to the bees gathering pollen which has been touched by the frost, and, not being able to digest it, this altered pollen collects in the intestines and causes death.

The most efficacious remedy is salicylic acid in the syrup given to the bees, as that acid has the property of destroying germs, and so preventing putrefaction. There was no trace of prussic acid, and this is so volatile that even a small quantity can be detected by the smell, which is like bruised Peach or Laurel leaves. I have not yet received any bees from the Greenock bee-keeper alluded to, but most likely they were affected with the same disease.—GEO. WALKER, Wimbledon.

THE PROPOSED BEE-KEEPERS' UNION.

THE *British Bee Journal* for June 9th contains an editorial article on the above headed "A Word of Caution," which is characteristic. I cite one sentence between two full stops as a sample. "The document is rough in arrangement, slatternly in style, ungrammatical in construction." Surely those who live in glass houses should not throw stones. Neither myself nor the rest of the promoters profess to be grammarians, but I question whether a third standard school boy could be found to

compose such a slatternly and ungrammatical sentence. It further says, "A singular document, purporting to be a prospectus of a Bee-keepers' Union, has been forwarded to us. It contains no names either of the promoters or the secretary; the name of the printer is also omitted."

The "document" in question is a draft proof of the prospectus. The front page is left blank for title, list of officers, &c. They were printed for the private use of the promoters. Not one has been sent through the post without my sign manual attached either to it or to a letter sent with it. Not one has been sent either to the Editor of the *British Bee Journal* or any director or officer of the Honey Company, but several have been sent to prominent members of the British Bee-keepers' Association, who profess to be and are considered friends of bee-keepers, asking them to join the Council as promoters; but singular to say, all who replied tried to throw "cold water" on the scheme. One said he did not consider the objects aimed at were desirable or necessary, nor did he think they could be carried out; excepting these, the scheme is being received with enthusiasm.

We are wanting to make the Council as representative of the twenty-one districts as possible, and anyone who is favourably disposed can have a copy of the "singular document" by applying to me. As far as I am concerned, I would like to get out of the work if someone will come forward to relieve me of it. Neither I nor the others have any thought of giving it up now. It is hoped to issue the prospectus to the public shortly, and those who are willing to do what they can to help forward the work will kindly oblige by applying at once for a draft prospectus.—J. HEWITT, Cambridge Street, Sheffield, Hon. Secretary pro tem.

TRADE CATALOGUES RECEIVED.

John R. Box, 118, North End, Croydon.—*Summer Catalogue of Bedding, Border, and other Plants.*

Ewing & Co., Havant, Hampshire.—*Catalogue of Roses, Hardy Trees and Shrubs, &c.*



TO CORRESPONDENTS

All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

LATE INQUIRIES.—It is necessary to again remind correspondents that letters arriving on WEDNESDAY MORNING cannot be answered in the "next issue," which is then far advanced for press.

Advertising (M.).—We are not able to suggest a course for you to pursue. Your proposal has been submitted to the publisher, and he agrees to do what you wish.

Small Rhubarb (Philomelos).—We have not yet been able to identify your variety. It is very rich in colour. Can you give us its history? We had the little bundle you sent stewed, and found it a delicious sweetmeat. The seedling from it resembles the St. Martin's.

Cabbages not Hearting (B.).—The prolonged mild autumn had a great deal to do with Cabbage plants forming flower stems instead of hearts this spring, and the evil was also no doubt contributed to by the severe check the plants received in the winter, and the protracted cold of what ought to have been spring—checks to growth predisposing most plants to flower.

Painting Cucumber House (Cambridge).—If you paint the inside of the house in which "Cucumbers are just well established" they will almost certainly be seriously injured, and may be ruined. We should push them on quickly, take a good crop, clear them out soon enough in the autumn for the house to be painted then, and get dry and sweet for winter occupation.

Watering Strawberries (Mrs. Mayor).—We do not give liquid manure after the fruit commences colouring, as we can get it as large as we desire by generous assistance before then in the form of drainings from manure heaps and stables, and covering the ground thickly with clean litter for arresting evaporation, this also preventing the fruit being soiled by contact with the earth.

Insects in Strawberry Bed (W. J. B., Wells).—These are the grubs of a Tipula or Crane-fly, the particular species being *T. gigantea*. Although you may not hitherto have observed them, it is probable you will find them doing injury at the roots of other low-growing plants. One of the best remedies for these and similar subterranean feeders is gas lime, the uses of which have been explained in a recent number of this Journal.

Flowers for the Shooting Season (Hermit).—Double and single Dablias planted now, also China Asters in quantity, French and African Marigolds, Anemone japonica and its variety alba, double and single perennial Sunflowers (Helianthus), Michaelmas Daisies in variety, Pyrethrum uliginosum, and late summer and early autumn-flowering Chrysanthemums. Such are all suitable for the purpose in question, and of the easiest culture. Herbaceous plants for flowering in the autumn should be planted early in spring. Tomatoes will not answer with certainty as you propose.

Insects on Chrysanthemum (W. J. M.).—One of these insects forwarded appears to be the larva or caterpillar of a small moth belonging to the Pyralis group. The second and third objects we take to be identical, only in a different stage of growth, and this insect is the maggot of a fly, presumably an Anthomyia. It is likely you have more to apprehend from the fly grub than from the moth larva. Both might probably be destroyed by judicious syringing. If you wish for more definite information concerning these, have the goodness to send living examples enclosed in a tin box, with a portion of the food plant.

Thinning Pears (Ebor).—Taking the cluster of Doyenné d'Été you send as an example we should take half the fruit off at once, and the others would swell the better, and assuming they all advance satisfactorily we should remove three others before the end of the month. Three fruits of this Pear may be left on a spur of a healthy tree, or four if the growth is very strong, as the crop being gathered early there is plenty of time for the tree to recuperate itself after the strain to which it may have been subjected by its crop. This answers your other question as to "why early Pears may be permitted to bear heavier crops than advised for late varieties."

Coleworts (D. Mason).—We usually sow from the middle to the end of May, and have plants of the right size for planting on ground vacated by Potatoes or other early crops. Those crops are, however, generally later this year than usual, and Coleworts raised from seed sown now would almost certainly be useful in due time. If the weather is hot and ground dry draw deep drills and flood them repeatedly, then after sowing cover the bed with mats in the daytime, withdrawing them at night, until the plants are seen pushing through the soil. The Rosette Colewort is good and very hardy, any of the dwarf early Cabbages being also useful when raised at the present time.

Propagating Cinerarias (L. M. B.).—You have attempted too much. It is not at all uncommon when all the seed possible is left to ripen for the plants to either die or produce few or weak suckers. It is better to cut down any plants of varieties you desire to perpetuate as soon as the flowers fade, as then the growths from the base will be more numerous and strong, always provided they are kept free from insects. It is a simple and good plan to plant out cut-down Cinerarias rather deeply in free soil in a shaded position, but not under trees; and if kept moist healthy growths will cluster from around the base of the stems and form roots. They can then be divided and potted.

Rhododendrons not Flowering (Clericus).—Your shrubs were perhaps exhausted by flowering last year, and they would be the less likely to flower this if the seed pods were not picked out as soon as the flowers faded. That should always be done, and copious supplies of water given in dry weather for encouraging quick and free growth, as late growths are not always matured. Mulching thickly with leaf soil or much-decayed manure, such as the refuse of Mushroom beds, is excellent for Rhododendrons, and when the shrubs are "few and choice," as in your case, some such assistance can usually be afforded. Short grass that is cut from lawns is much better than nothing.

Pelargoniums (Undergardener).—Cuttings of Show Pelargoniums can be made of the ripened stems that are severed from the plants in the process of cutting down, taking care that there is a growth bud—not a flower bud—in the axil of the leaf that is above the soil after the cuttings are inserted. A quicker method of forming good plants is by striking the short-jointed flowerless shoots that usually push from the base of the stems of healthy plants just before the expansion of the flowers. Some of those cuttings that we inserted three weeks or more ago are now thrifty young plants, and will be much superior next spring to others raised from matured wood six weeks or two months later.

Watering Flower Beds (J. C.).—The evening is the best time for watering in hot weather, because there is then little or no evaporation of moisture from the earth for several hours, and in the meantime the plants are imbibing support to fortify them for the strain on their energies during a possible exhausting day. When water is applied on hot bright mornings, and the greater part of it is extracted by the sun, the lesser by the plants; at the same time the temperature of the soil is lowered, cold always accompanying evaporation, and consequently the tops of plants may be roasted, so to say, and the roots perishing. Watering to be effectual in hot weather must be thorough; and it is better to do one portion of a garden well on one evening, and another the next, than to merely sprinkle the whole, making the surface alone wet, leaving the ground dry below. Where mulching cannot follow watering it is an excellent plan to run the hoe through the soil as soon as it is dry enough to be worked freely.

Dressing Vines (G. Jackson).—We do not consider it a good plan to remove much of what you call "superfluous lateral growth" after the Grapes commence changing for ripening. It is much better to prevent such an excess of growth by timely pinching those laterals that are not wanted. We never use a knife for dressing Vines in summer, but "run over" a large house frequently before breakfast and nip off such growths that can serve no good purpose, the "prunings" of a dozen Vines being held in the hands. There is no check to the flow of sap after that practice, but there is when armfuls of "stuff" is taken out at once, and we have seen Grapes remain stationary for some days when that has been done, and have never made up for the lost time, thus being smaller than they ought to have been, and would have been if the plan indicated had been followed. When pinching has been neglected we would rather bend the sub laterals and let them hang below the main leaves than sever them from the Vines in large quantities when the fruit is colouring. Black Grapes colour better in the shade than under the direct action of the sun.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (*Lady King*).—*Erigeron aurantiacus*, and we thank you for sending such a good specimen.

COVENT GARDEN MARKET.—JUNE 15TH.

BUSINESS steady, with market well supplied. Strawberry s coming shorter.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, ½ sieve	0	0	0	0	Oranges, per 100	8	0	12	0
" Nova Scotia and					Peaches, dozen	4	0	1	0
Canada, barrel 10 0	13	0			Pears, dozen	0	0	0	0
Cherries, ½ sieve	0	0	0	0	Plum Apples, English,				
Cobs, 100 lbs.	0	0	0	0	per lb.	1	6	2	0
Figs, dozen	3	0	6	0	Plums, ½ sieve	0	0	0	0
Grapes, per lb.	2	6	4	0	St. Michael Pine, each	3	0	8	0
Lemons, case	10	0	15	0	Strawberries, per lb.	2	0	5	0
Melon, each	2	0	3	0					

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes, dozen	1	0	2	0	Lettuce, dozen	1	0	1	6
Asparagus, bundle	1	6	4	0	Mushrooms, punnet	0	6	1	0
Beans, Kidney, per lb. ..	1	3	0	0	Mustard and Cress, punt. ..	0	2	0	6
Beet, Red, dozen	1	0	2	0	Onions, bunch	0	3	0	6
Broccoli, bundle	0	0	0	0	Parsley, dozen bunches ..	2	0	3	0
Brussels Sprouts, ½ sieve	0	0	0	0	Parsnips, dozen	1	0	0	0
Cabbage, dozen	1	6	0	0	Potatoes, per cwt.	4	0	5	0
Capsicum, per 100	1	6	2	0	" Kidney, per cwt.	4	0	0	0
Carrots, bunch	1	4	0	0	Rhubarb, bundle	0	2	0	0
Cauliflowers, dozen	3	0	4	0	Salsify, bundle	1	0	1	6
Celery, bundle	1	6	2	0	Scorzonera, bundle	1	6	0	0
Coleworts, doz. bunches ..	2	0	4	0	Seakale, basket	0	0	0	0
Cucumbers, each	0	4	0	6	Sballots, per lb.	0	3	0	0
Endive, dozen	1	0	2	0	Spinach, bushel	3	0	4	0
Herbs, bunch	0	2	0	0	Tomatoes, per lb.	0	9	1	0
Leeks, bunch	0	3	0	4	Turnips, bunch	0	4	0	6

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.
Aralia Sieboldi, dozen ..	8	0	12	0	Fuchsia, dozen	4	0	9	0
Arbor vitae (golden) dozen	6	0	9	0	Genista, dozen	0	0	0	0
(common), dozen	6	0	12	0	Geranium (Ivy), dozen ..	4	0	6	0
Azalea, dozen	18	0	30	0	" Tricolor, dozen	3	0	6	0
Begonias, dozen	4	0	9	0	Hydrangea, dozen	9	0	12	0
Calceolaria, dozen	4	0	9	0	Lilacs Valley, dozen	9	0	18	0
Cineraria, dozen	4	0	8	0	Lilium longiflorum, doz. ..	18	0	30	0
Creeper Jenny, dozen ..	3	0	4	0	Lobelia, dozen	4	3	6	0
Dracena terminalis, doz. ..	30	0	60	0	Marguerite Daisy, dozen ..	0	0	12	0
" viridis, dozen	12	0	24	0	Mignonette, dozen	4	0	9	0
Erica, various, dozen ..	18	0	30	0	Must, dozen	2	0	6	0
Eucynmus, in var., dozen	6	0	18	0	Myrtles, dozen	6	0	12	0
Evergreens, in var., dozen	6	0	24	0	Palms, in var., each	2	6	21	0
Ferne, in variety, dozen	4	0	18	0	Pelargoniums, dozen	6	0	15	0
Ficus elastica, each ..	1	6	7	0	" scarlet, doz.	3	0	9	0
Foliage Plants, var., each	2	0	10	0	Spire, dozen	6	0	12	0

CUT FLOWERS.

	s.	d.	s.	d.		s.	d.	s.	d.
Abutilons, 12 bunches ..	2	0	4	0	Marguerites, 12 bunches ..	2	0	6	0
Anemones, 12 bunches ..	2	0	4	0	Mignonette, 12 bunches ..	4	0	0	0
Arum Lilies, 12 blooms ..	3	0	6	0	Myosotis, 12 bunches ..	2	0	6	0
Azalea, 12 sprays	0	6	1	0	Narciss, 12 bunches	2	0	6	0
Blechns, 12 bunches	1	0	1	6	" White, English, bch. ..	0	0	0	0
Bouvardias, bunch	0	6	1	0	Pansies, 12 bunches	2	0	4	0
Camellias, blooms	1	0	3	0	Pelargonium, 12 trusses ..	0	9	1	0
Carnations, 12 blooms ..	1	0	2	0	" scarlet, 12 trusses ..	6	4	0	6
" 12 bunches	0	0	0	0	Poinsettia, 12 blooms	0	0	0	0
Cornflower, 12 bunches ..	3	0	6	0	Primula (single), bunch ..	0	0	0	0
Daisies, 12 bunches	2	0	4	0	" (double), bunch	0	9	1	0
Encbaris, dozen	4	0	6	0	Polyanthus, 12 bunches ..	2	0	4	0
Gardenias, 12 blooms ..	1	6	3	0	Ranunculus, 12 bunches ..	8	0	6	0
Hyacinths, Roman, 12 ..					Roses, 12 bunches	4	0	9	0
sprays	0	0	0	0	" (Indoor), dozen	0	9	1	6
Ixia, 12 bunches	2	0	4	0	" Tea, dozen	1	6	3	0
Lagerbergia, white, 12 blms.	0	0	0	0	" red dozen	2	0	4	0
Lilium longiflorum, 12 ..					Rose le Moie, 12 bunches ..	0	0	8	0
blooms	3	0	6	0	Stephanotis, 12 sprays ..	2	0	4	0
Lilac (white), French, ..					Tropaeolum, 12 bunches ..	1	0	2	0
bunch	4	0	7	0	Tuberose, 12 blooms	0	9	1	0
Lily of Valley, 12 sprays ..	0	9	1	0	Tulips, dozen blooms	0	0	0	0
" 12 bunches	2	0	6	0	White Pinks, 12 bunches ..	1	0	4	0



OUR CEREAL CROPS.

OATS.

For all the live stock of the farm Oats form an important and nourishing article of diet. For fattening

poultry, pigs, and sheep we can have nothing better, nothing cheaper, whether as home-grown or purchased food. Imported Oats have been and are still very cheap, but many samples of foreign Oats are so inferior in quality as to be comparatively worthless, affording unmistakable evidence of the poverty of the soil in which they were grown. No corn answers better under high culture—none repays better; and yet we often find less care bestowed upon it than upon any other crop.

We know that 15 quarters of Oats can be grown per acre, and if the sample is a good one there is very little difficulty in obtaining a fair price for it—that is to say, a price that really affords a fair profit. At 18s. per quarter we have a return of £13 10s. per acre for grain, and we must not forget how valuable the straw is when cut into chaff for feeding horses, bullocks, cows, and sheep. It has been possible to obtain the price we mention for home-grown Oats even during the prevalence of exceptionally low rates, which have been brought about by heavy importations of foreign corn. We have, therefore, ample reason for our assertion that this corn crop is a profitable one, worthy to take rank with our best farm crops if only due care and pains are bestowed upon its culture. In point of fact it is really superior to either Wheat or Barley in many ways. If we take winter Oats we can sow them in the autumn either for grazing as a green crop in spring; for a supply of ripe corn in July, which is harvested and threshed before other corn is ripe, or for both purposes; for winter Oats may be fed off by sheep in spring and yet afford a fair crop of grain subsequently. Last year we did not get our winter Oats off the land so early as usual, yet never did we find the crop more useful. It was at once threshed, the corn was sold at 18s. per quarter, and the straw was either chopped or turned to account for thatching other corn stacks. When Oat straw is thus used for thatching care is taken to build the top of the ricks to an acute angle, so that rain water may pass off quickly, as Oat straw becomes sodden with wet more quickly than any other.

Winter Oats should always be sown on land that is well drained, and if possible on an elevated position. In so severe a winter as the last one was the winter Oat plant suffered so much in the lower fields that whole patches of it were killed. It is not often that this happens, yet it is as well to avoid the risk by sowing both winter Oats and winter Beans on upland fields where the cold is less intense and drainage is sound. Let the Oats also be sown early, so as to get a strong sturdy plant before severe weather sets in. Avoid over-luxuriance of growth in autumn by having the land sound but not too rich in fertility. Rather give a liberal dressing of chemical manures in February, when the manures are quite certain to be dissolved quickly, and to take speedy effect upon the plant. We have several fields of this useful crop on different farms, the best of which was self-sown. The field was ploughed early in autumn, and the Oats sprang up so thickly that we decided to leave them undisturbed till spring, when the plant seemed thick enough to be worth keeping and dressing with chemical manure. This was done, and now it presents a luxuriant appearance, the growth being strong and of that dark green hue which betokens unmistakeably soil stored with fertility in the best way.

Spring Oats are also very useful, and may be sown earlier or later than any other corn. We may sow them in February or May with an equal degree of certainty of getting a full crop. We may add that we have done so this year, and although the late-sown Oats are somewhat

backward in growth yet they are full of promise, and will follow the other crops closely. White Oats or black Oats are very much alike as to results: the first may be classed as *Avena sativa*, the common Oat; the last as *Avena orientalis*, or Tartarian Oat. Varieties of both are numerous enough, yet we have only to take care in our selection of seed that it is free of tail corn and seeds of Charlock or other weeds. We prefer a thick, short, plump grain to a long thin one. One word more about manure for Oats. We have on the poor thin soil of mid-Sussex had Oats in the same field 6 inches high and 6 feet high, the 6-inch and the 6-foot straw each alike bearing its panicle of grain perfect in development, though wonderfully different in size. The lesson is clear enough: feed the Oat crop well and it will repay you, for the manurial constituents of an acre in decimals are—nitrogen 63, potash 48, and phosphates 43.

WORK ON THE HOME FARM.

Sheep-shearing is now practically ended once more, but we shall not sell the wool till prices are steady. We did hope to obtain 1s. per pound for wool this season, but are now doubtful if we shall get more than 10d. The ewes come out of the wool in fair condition, having regard to the fact of the heavy strain which big growing lambs have made upon them up to the time of shearing. We do not like to see newly shorn ewes so much reduced in condition as to be just so many "bags of bones," for then they are a long time before they recover from the effects of such treatment. In the case of young ewes so fallen off in condition, the growth is stunted, and the lambs next season are apt to be weakly and delicate. It is the habit of many farmers to feed the lambs well, while the ewes are only half fed, yet they ought to know that the milk of such ewes affords much less sustenance than that of a well fed ewe. Truly such men are "penny wise, pound foolish." We cannot upset the balance of Nature with impunity, and we repeat that every animal kept upon a farm should be either fat or in a kindly healthy condition. A week ago we sold our first batch of store lambs at 28s. 9d. apiece. There was a hundred of them, and they were fine sturdy animals, forward in condition, but not fat. They were the offspring of half-bred Suffolk ewes and Hampshire Down tups. From this cross we obtain big sturdy lambs which, under careful treatment, grow quickly, and which may be fattened early or soon brought on as hoggets. The best test of the value of lambs is a comparison of prices at the early sales, and for pure Suffolk lambs sold a day or two after ours we note such prices as 27s., 26s., 22s. 6d., 20s. 6d., and 16s. Such prices speak for themselves, and may be taken as a clear indication of value in an open market. On the day we sold our first batch of lambs we saw hoggets sold for 33s. apiece. Those hoggets had evidently had "to earn their own living" from the time they were weaned, and they could not have been well fed, even as suckling lambs. We maintain that this semi-starvation practice is altogether a mistake, involving, as it undoubtedly does, a loss of money, poverty of condition, both in the animals, and also in the land on which they are kept.

OUR LETTER BOX.

Flies and Horses (G. D. P.).—When flies are very troublesome Dr. Ridge recommends a mixture of one part of crude carbolic acid with six or more parts of olive oil. This should be rubbed lightly all over the animal with a rag, and applied more thickly to the interior of the ears and other parts most likely to be attacked. This application may need to be repeated in the course of the day, but while any odour of the acid remains the flies decline to settle, and the horse is completely free from all their annoyance.

METEOROLOGICAL OBSERVATIONS.


CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				
	Barometer at 32° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature		Rain.
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1887.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
June.										
Sunday	30.122	59.2	53.4	N.E.	54.0	69.6	50.8	111.3	47.0	—
Monday	30.146	58.6	56.1	N.W.	55.2	67.9	53.2	114.2	49.2	—
Tuesday	30.045	64.5	58.6	S.	55.2	68.3	53.4	101.6	47.7	—
Wednesday ..	30.056	63.6	60.1	S.E.	55.9	74.8	56.4	116.4	52.8	0.052
Thursday	30.187	60.6	55.1	W.	56.3	73.4	49.7	119.4	44.9	—
Friday	30.395	61.3	54.7	N.W.	57.4	72.2	49.4	121.5	42.7	—
Saturday	30.433	61.3	53.9	S.	57.5	75.2	46.6	118.2	42.7	—
	30.196	61.3	50.0		55.9	71.6	51.4	114.7	46.3	0.52

REMARKS.

5th.—Fine and bright day and night.
6th.—Generally cloudy till after 3 P.M.
7th.—Fine and generally bright.
8th.—Fine hot morning; showers with thunder in afternoon; fine evening.
9th.—Lovely all day.
10th.—Fine, cool, and pleasant.
11th.—Bright and fine.
A fine dry week; temperature about 4° above the average.—G. J. SYMONS.



COMING EVENTS

23	TH	Bury St. Edmunds Show (two days).
24	F	
25	S	
26	SUN	3RD SUNDAY AFTER TRINITY.
27	M	
28	TU	Royal Horticultural Society. Committee Meetings at 11 A.M.
29	W	Richmond and Croydon Shows.

REMINISCENCES OF FIFTY YEARS AGO.

IN looking back from the horticultural standpoint over the fifty years that are past since Her Majesty began her prosperous reign, one is naturally reminded of the great changes that have taken place, of the ups and downs which horticulture and horticultural institutions and establishments have undergone, and above all of the marvellous progress and development the cultivation of fruits, flowers, and vegetables has undergone in that time. Fifty years ago there were many large horticultural establishments which do not now exist, and it may surprise the present generation to be told that there were nurseries in Sloane Street and continuously along both sides of the King's Road, Chelsea, the boundaries of which consisted of quickset hedges and a ditch, where now crowded streets and thriving shops have taken their place. At the east end of that road, where Colville Terrace now stands, was the noted nursery of Colville, whose foreman was the unfortunate but celebrated Robert Sweet. A little farther west was Davey's, the noted florist, celebrated for his collections of Tulips, Auriculas, and hybrid Pelargoniums, one of which gave him a wide celebrity under the name of Daveyanum. Mrs. More's place was on the opposite side of the way from Davey's, where many of the early hybrid Pelargoniums were raised, and notably that charming form called More's Victory, now rarely to be seen. The great King's Road nursery of Joseph Knight was then in the height of its prosperity. It later became known as Knight & Perry's, and eventually under the designation of James Veitch and Sons it attained a development and distinction that the nursery of Joseph Knight never knew.

Following the King's Road beyond Knight's and a little beyond Stanley Bridge there was at that time an old direction post which indicated "This is ye King's Private Road." How long it had been there the quaint inscription indicates, but it has long since disappeared before the invasion of bricks and mortar. This road led to Fulham, where was the noted nursery of Whitley and Osborn, now a thing of the past, of which no trace remains except the good name and great reputation of the conductors.

Brompton and Little Chelsea were composed almost entirely of nurseries and market gardens. Where Thurloe Square now is, and extending all round, was the nursery of Harrison & Son, subsequently Harrison & Bristow, and thence in the direction of Fulham on the right the whole district was open and cultivated. At Earl's Court were the large market gardens of Gunter the noted confectioner in Berkeley Square, whose name is preserved in that of many parts of this; the valuable estate of which

his heirs are now the possessors. At Hammersmith the noted "Vineyard" of the Lee family was in the full extent of its original proportions, now sadly shorn by the encroachments of railway companies and speculating builders. Messrs. Lee still retain their ancient home-stall, though the business is carried on as vigorously as ever in other parts of what are now suburbs of London, but which at the time of which we are now writing were looked upon as being in the open country. At Brentford the large and important establishment of Hugh Ronalds and Son was at this time in the height of its prosperity, and commanded a wide and extensive business, not only in the nursery, but also in the seed departments. It, too, has passed away and has left no trace behind it.

Coming nearer town we reach Kensington, where were the nurseries of William Malcolm, a prominent character in his day. These were between what are now called the Gloucester Road and Victoria Road opposite the Palace wall. These nurseries before they were occupied by Malcolm belonged to Grimwood, whose name is perpetuated in the Peach called Grimwood's Royal George. Nearer town, and where Prince's Gate now stands, was the entrance to the celebrated Brompton Park Nursery founded by Lukar, Field, Cooke, and London in 1681, and celebrated by Evelyn and Sir Richard Steele. At this time they were in possession of Gray, Son, & Adams, and extended over about 50 acres, embracing the whole of what is now Prince's Gate, the Royal Horticultural Society's Garden, Queen's Gate, and extending to the Gloucester Road. What is now called Exhibition Road was the broad centre walk of the Brompton Park Nursery. Kirke's nursery was where the Natural History Museum now stands. It was entirely occupied with fruit trees, and the name of the owner still survives in the names of various Apples.

Crossing the Park to the Edgware Road we find fewer changes. The same establishments still exist, the most noted of which is that of Pine Apple Place and Wellington Road, conducted by Messrs. E. G. Henderson & Son, representing the third generation of the same family who have carried on the business. The grounds now occupied by the gardens of the Royal Botanic Society were at the period of which we are now writing the nurseries of Mr. Thomas Jenkins. Early in this century—in 1806—these grounds were the scene of a romantic affair. In the neighbourhood of "Marybone Fields," as the Regent's Park was then called, there were several boarding schools for young ladies, the inmates of which were permitted to walk in the nursery grounds. One of these young ladies either attracted or was attracted by George Gwyther, the nephew of Mr. Jenkins, who rewarded the attention bestowed upon him by presenting the young lady with occasional bouquets. She in return resigned to him her heart, and they were married. On the 11th of February, 1817, on the death of her father, Mrs. George Gwyther became Countess of Rothes in her own right, and George Gwyther was the father of the present heir presumptive to that peerage.

Pursuing our course round the north side of London where there were many small nurserymen and florists, we come to Barr & Brooks of Balls Pond, which has long since passed away. Milne of Stoke Newington has also disappeared, but we have still in that region the old and flourishing establishment of Hugh Low & Son at Clapton. Bunney of the Kingsland Road, a noted man in his time, was "built out," and took refuge at Stratford-le-Bow, where he was again built out and eventually effaced.

Loddiges of Hackney was flourishing at the beginning of Her Majesty's reign, and those who knew him will ever remember the benevolent countenance and genial courtesy of Conrad Loddiges. The locality of this famed establishment is to be found in Loddiges Square, another vile invention of the speculating builder as a substitute for green fields and flower gardens.

Coming nearer the City there was the famed Mile End Road nursery of Gordon & Thomson. Gordon, after whom that beautiful shrub *Gordonia* was named, had long since died, but the nursery was still kept up by James Thomson, who in his turn had to yield to the pressing necessities of the time, and become a martyr to bricks and mortar.

On the south side of the river were Wilmott and Chaundy of Lewisham, large and important nurserymen and seed growers. At New Cross Cormack & Son, also great nurserymen and seed growers, who introduced Cormack's Prince Albert Pea, and who had for partner George Sinclair, the author of "*Hortus Gramineus Woburnensis*" after he retired from the service of the Duke of Bedford at Woburn. These are all gone, as is also Myatt the market gardener hard by who was the first to introduce the leafstalks of Rhubarb as a cooked esculent; and the ditch beyond New Cross Turnpike Gate, into which the writer of this stumbled in a dense fog in 1837, is long since filled up, probably replaced by some filthy sewer or foul drain diffusing fever and fragrance round. At Camberwell was the well-known nursery of Buchanan and Son. In Walworth, Groom, the noted bulb grower and florist, cultivated his Tulip beds and Lily bulbs, before he removed to the Clapham Road. At Clapham the celebrated Heath culture of Fairbairn & Son was conducted; while a little further on, at Tooting, was the still greater and more important business of Rollisson and Son. And now to complete the circle we shall conclude our notice of nurseries by that of Chandler, the noted Camellia growers of the Wandsworth Road, Vauxhall. And speaking of Vauxhall reminds us that the lights of the celebrated gardens had not yet been extinguished, nor had Mr. Simpson ceased to raise his hat and exhibit his calves, bidding welcome to his distinguished patrons.

There are some of the provincial nurseries that deserve a passing notice in such a record as this. The vast nurseries of Miller & Sweet of Bristol are no more, but a portion of the ground and homestead are in the occupation of Messrs. Garaway & Son. The great nursery of Mackie of Norwich has become extinct, and of Falla of Newcastle-on-Tyne, and Skirving of Liverpool. But there are still in vaster proportions than at the beginning of the reign Richard Smith & Co. of Worcester; the two houses of Dicksons of Chester; Fisher, Son, & Sibray of Sheffield; Backhouse & Son of York. The old house of Adam Paul is represented by the two prosperous establishments at Cheshunt and Waltham Cross. The cultures of fruit trees and Roses at Sawbridgeworth are continued with ever-increasing ardour and ability; and the two great houses of Lucombe Pince, & Co., and Veitch & Son of Exeter, have still their representatives. A remarkable circumstance in connection with the nursery trade is how families of the Quaker community have all but ceased to be associated with it. At the beginning of the Queen's reign there were the great house of Mackie of Norwich, already referred to; John Atkins of Northampton, lately dead, and in these recent times better known as Atkins of Painswick; John Young of Taunton; and James Backhouse & Son of York. The last is the only one of these now in existence.

The principal seedsmen of the metropolis at the commencement of Her Majesty's reign were, Jacob Wrench and Son of London Bridge, still in existence, and this is the only one of the "large houses" that is. The names of Beck & Allen, of the Strand; W. & J. Noble, of Fleet Street; Warner, Seaman & Warner, of Cornhill; Field & Child, of Thames Street; John Gardiner, of the City Road; Hay, Anderson, and Sangster, of Newington Butts; George Charlwood, of Covent Garden; Nash, Adams and Nash, of the Strand have all passed away. The present house of Nutting & Son was then represented by Flanagan & Nutting; that of Rutley & Silverlock by George Batt in the Strand; the great agricultural seed house of Thomas Gibbs & Son has become merged in that of George Gibbs, who has adopted the former title. James Carter at that time had a very tiny shop in Holborn, where he had a well deserved reputation for scientific knowledge of his leading commodity of flower seeds, and where he carried on a prosperous business, little dreaming, good worthy man, that within the same reign that little shop would become a range of great warehouses, and the business one of the largest in London.

At that time the important house of Hurst & Son did not exist, nor did that of Waite, Nash & Co., only so far that it absorbed the old house of Nash of the Strand. Robert Cooper of Southwark Street (now deceased) was at the time an office clerk and traveller to Nobles of Fleet Street; but there is no important house existing now, which had its origin prior to the Queen's accession, except those we have mentioned. Although not strictly speaking a London house, though they have offices in London, that of Messrs. Sutton & Sons of Reading must be noticed as one of the pre-Victorian period, which has acquired a development in one generation such as is not to be surpassed for extent and reputation. Those who remember the small shop in the Market Place of Reading, and who have seen the vast storehouses that are necessary to supply the present requirements of the establishment, cannot but be struck with surprise at the accomplishment of such results, involving as they must have done resources of mental power and business capacity rarely met with.

There is a remarkable contrast between "the trade" of the Queen's reign and the former, and that is the ideas they had with regard to catalogues and advertising. At that time the house that advertised was hardly considered "respectable," and certainly not "genteel." But certain houses thought otherwise, and persistently appealed to the public through the weekly pages that were ready to afford them the desired publicity. The consequence was that they shot ahead of their antiquated rivals, and many of them are now the most extensive and the most prosperous to be found. In fact we may say that almost if not all the great firms that have sprung into existence during Her Majesty's reign have attained their position through advertising. Another peculiarity of the old-fashioned trade was not to issue priced catalogues. Catalogues of their saleable commodities were common enough, but to indicate the prices of them was a privilege that the public was not admitted to. How all these are changed!

At the time of Her Majesty's accession to the throne the literature of horticulture was represented by John Claudius Loudon, a man ever to be remembered; Charles M'Intosh, Joseph Paxton, Joseph Harrison, Robert Marnock, and George Glenny. "Loudon's Gardeners' Magazine" was the leading gardening periodical, and continued to be till Loudon's health failed, and it had to encounter the rivalry of cheaper monthlies, and the still more powerful attractions of two weekly papers. The two monthlies

were the "Horticultural Register," edited by Paxton and Marnock, and the "Floricultural Cabinet," conducted by Joseph Harrison. The first weekly paper was the "Gardeners' Gazette," projected by George Glenny; this appeared in 1837. It was conducted in a bad spirit, and was remarkable more for its personalities and abuse than for any real benefit it was to horticulture. The manner in which it was edited afforded a golden opportunity for a rival, and this very soon appeared in 1841 as the "Gardeners' Chronicle," projected by Paxton and Wentworth Dilke, with Lindley as Editor. This may be said to have been Lindley's first connection with gardening literature, unless we except his "Theory of Horticulture," which appeared in 1840, and that is as much botanical as horticultural. In 1848 "The Cottage Gardener" was first published, and eventually was much enlarged, appearing as "The Journal of Horticulture." The whole of the periodicals that appeared prior to the "Gardeners' Chronicle" have disappeared, and their places have been supplied by successors, which by the ability with which they are conducted have raised our horticultural press to a high position in the periodical literature of the world. It will be conceded, too, that this gardening literature has contributed in no small degree to the wide and ever-widening interest that is taken in the cultivation of plants and crops by almost every section of the community.

PLANTING IN SUMMER.

WHEN is the best time to plant the various kitchen garden crops, that, from time to time, require removal from the seed bed to the quarters where they are expected to remain for permanent use? This is a question that has several times been asked, and is one to which anything but a general answer can be given; for, although it is customary to say, "plant out after rain," the many failures we see from so doing would seem to imply that the advice must be acted upon with caution, or, in other words, it must be qualified to suit the circumstances of the case. We have all seen fine young batches of Lettuces planted out in their final quarters, disappear within a very few hours after; and beds of tender annuals have sometimes suffered a like fate, more especially if they be margined by a considerable breadth of grass, which forms a lurking place from which foraging parties of their enemies make nightly sallies, and carry away all that is most valuable. Now, this drawback amounts, in some instances, to the entire loss of a crop, or several crops in succession; nor are protective measures so effective as could be wished: it therefore becomes the inquiring mind to weigh well the benefits of planting after heavy rains, and the evils to which the system is exposed. We have been so situated, as to find it almost impossible to save our Brussels Sprouts, Greens, &c., which it is customary to plant out early in June, if we planted them out in wet weather; we, consequently, adopted the other extreme, and planted them out when the ground, as well as the weather, was very dry, and usually with great success. The reason was obvious—a stiff, retentive soil is the one most favourable to the production of slugs, the enemies of almost all young and tender vegetation; while a soil of an opposite kind is one of the best antidotes to their increase—the sharp, gritty particles of which a sandy soil is composed being at variance with the locomotive powers of slugs, and they are less able to crawl about in search of food, and do not, consequently, exist in such number as in the more adhesive loams, better known, in garden phraseology, as heavy soils.

Now, as the slug exists in the stiff soil to a more dangerous extent than in the dry, sandy one, we may reasonably infer that the planting operation ought to be done on the stiff soil in dry weather, in order that the plants may escape the ravages they would be subjected to were they planted out whilst it was wet, and apparently favourable to the plants growing well. A few dull days in the midst of dry weather, are to be preferred, and to such plants as those of the large Cabbage family, which root rather deeply, there is seldom that lack of moisture, in such soils, as to render more than one watering necessary; while, on the dry, sandy, or gravelly soils of some districts, they would want that assistance almost daily, in order to support themselves against the drying influence by which they are surrounded.

Now, in planting out crops on these two soils, it is easy to see

that two different courses must be adopted—the stiff, retentive one must be planted in dull, dry weather, and when the surface of the ground is tolerably dry; while the sandy, or gravelly soil must be planted, if possible, in a showery season, in order that the plants may derive the full benefit of that agent on which they must look as affording them the most important portion of their daily food—i.e., atmospheric moisture. These reasons being given, it is easy to see when the best time has arrived for planting out the various Cabbageworts in summer.

It is next a matter of inquiry as to their size, and other particulars, and this is, also, tolerably easy to define; for a small, delicate plant, with its leafstalks elongated, so as to be unable to support the broad portion of its leaf, is not at all likely to withstand the sunshine of midsummer, nor the drying effects of the dog days; but such an one may be able to endure the change which is rendered comparatively easy, when performed at a time when both the ground and the atmosphere is saturated with moisture; it then speedily accommodates itself to the altered circumstances of its position, and those leaves, which, at planting out, were unable to hold up their proper side to the sun, quickly recover strength to do so, and that before any serious harm takes place from their reversed position, for the latter was done while the sun had, comparatively, little chance to injure them, the air being moist, &c. Let it be observed that this operation must only be performed on such ground as is tolerably free from such pests as prey on the young plant, otherwise its delicate condition, when in the state we have thus described, will speedily tempt them to its destruction. There is a class of plants less robust than the Cabbageworts, and equally, if not more, agreeable to the stomach of the voracious slugs; these must be differently treated, for they cannot well endure the scorching sunshine that the others can, neither are they so deep-rooted as to penetrate below its influence; with these, therefore, some more stringent means must be adopted to drive out, or keep at bay, those enemies they are so likely to suffer from. Usually, repeated workings of the soil will effect that purpose; but when that has not been accomplished, the addition of something or other as a repellent to them; for this, nothing is better than soot or wood ashes, which, besides, are excellent manures; but, in addition to their use, the ground must be made very fine, and, if it be very dry, it ought not to be planted immediately after being watered; but after the top has got a little dry again, and when the plants are put in, and, if needs be, watered, take the precaution to scatter some dry ashes, or other offensive substance, over the ground, to repel the invasion of the enemy. By this means it is likely the plants will get hold enough with the moisture which there exists to withstand the more trying part of the season without having recourse to the watering pot, which too often invites the depredators.

During the spring, when the slugs were making sad havoc amongst many crops, our Peas were saved by removing all rough and cloddy lumps from near them, and supplying their place with a finer material, to which lime, soot, or ashes had been added—the distastefulness of these latter substances kept the enemy away until the plant outgrew their attacks. Beds of Carrots, too, are especially favourites with them; and we know of many one who had to sow again, and blaming their seedsman, had to submit to a very late crop; whereas the fault lay with their own want of care, or, it might be, want of means; for the season was very awkward, so that the proper working of the ground, which ought to have been proceeded with at various times during the winter and early spring, was sadly impeded by the unfavourable state of the weather; but when anything like a smooth surface was obtained, with a fair average depth of friable soil below, we do not see any reason why a "good plant" of Carrots might not fairly be looked for; as repeated dustings of lime, commencing about a week or so after sowing, ought to preserve the crop, unless under circumstances peculiarly favourable to their enemies. For instance, we dislike to sow Carrots after a Cabbage crop, the latter harbouring so many of these voracious vermin, which only retire underground during the daytime, to come out at night on their marauding excursions. To stop these gentry, it is necessary to seal up, as fast as possible, their place of abode, and a fine state of the soil will usually effect this object; many will still escape, and these must be deterred from committing any ravages, by their journey being made as distasteful as possible.

As much of the after success of a plant depends on its deriving all the advantages it can at planting time, and consequently avoiding all the evils, it becomes a matter of importance to select the most fitting time on which to perform these various operations; and not only that, but to watch them sedulously afterwards for some time. It is worse than useless to say that everything depends on the watering pot, for be assured of it, that cold well water (perhaps hard too), is just as likely to do harm as good, more especially when given in daily deluges. Much as our plant-growing

friends condemn the dribbling system, it is infinitely better for outdoor things than severe duckings of cold well water; and we have been sometimes grieved to see the poor cottager watering his plants as he would a lime heap, by bucketsful at a time, while his plants were absolutely perishing before him.

In concluding this article on planting, we must not omit to enter our protest against another practice we have seen adopted, which is, puddling the plants, by drawing their roots through a substance of clayey mud, made as thick as batter, and planting them with what adhered to them; this was bad, because the sealed-up condition that the rootlets were in is sadly against their after ramifying for food; while the only benefit, if it even be one, is, that they perhaps do not flag so much at the precise moment; but this is dearly bought by the difficulties it places in the plant's way afterwards.—R. J. N.

ROSE-GROWING FOR BEGINNERS.

(Continued from page 457.)

LIQUID MANURES AND STIMULANTS.

AFTER the beginner has reaped his first crop of Roses, if he still intend to persevere and improve the quality of his flowers—and I suppose most folk like to go on improving—he will begin to make inquiries how he can best effect his object. Provided he has plenty of air and light, and his drainage has been attended to, the only means of doing this, as far as I know, is by the use of lime, manures, and stimulants. I am not going to enter into any long and tedious explanation of these matters; what I have to say will, I think, be to the point.

LIME.

What will this do for us?

Applied to heavy clays, it lightens them and makes them easier to work.

Applied to light, poor soils (in the form of chalk), it stiffens and consolidates them.

It neutralises and removes noxious matters from the soil, and promotes the decomposition of all organic matters therein.

It combines with and holds manures in soils.

It improves barren sands.

It prevents disease, and ripens crops at an earlier date.

It kills seeds of weeds and fungi, and in pastures destroys weeds and worthless grasses, while forming and encouraging the growth of sweet and nutritious herbage.

It destroys moss, grubs, snails, &c.

It liberates the mineral matter in the soil.

It supplies to the plant ingredients indispensable to fertility.

But remember—

Lime exhausts the land.

Lime gives two crops instead of one, but when the land is exhausted it ceases to act.

These facts should be sufficient to satisfy most people as to the advantages of lime, so I will pass on to say in what state we should apply it to the different kinds of soil.

On clay lands, or such as are boggy, marshy, or peaty, or contain a quantity of inert vegetable matter, quicklime will do most good. The more freshly slaked, the more powerful the result. It should be applied when the land is fallow, and manure should not be allowed to come in contact with it.

On light sandy soils quicklime is not advisable; here it burns up the vegetable matter too quickly, and renders the land in a short time poorer than before. For this kind of land chalk is most suitable, but quicklime can be turned into something very like chalk—viz., carbonate of lime, by exposure to the weather; it loses all its caustic properties by absorbing water and carbon from the atmosphere, and is then in a suitable state for applying to light soils. It may be put on in this state at any time.

Soil should not contain less than 3 per cent. of lime, while it is not considered any advantage to add more than from 6 to 10 per cent. To add 1 per cent of lime to any soil 12 inches deep, we should require 16 tons per acre, so that to give 3 per cent. we should have to apply 48 tons. As soil containing as much as 38 per cent. of chalk or carbonate of lime has produced good crops, I do not think we need have much fear of overdoing it.

One of the best plans of applying lime to land in cultivation is in the form of compost; that is, when it has been thrown together for some time—the longer the better—with soil, weeds, road scrapings, &c., and left to amalgamate. This mixture, when old, may be applied at any time without danger to plants, and possesses this advantage over lime laid up alone to become slaked, that it has already undergone some chemical changes that are favourable to plant life.

Where our operations are extensive supplying the necessary lime to our land becomes a serious consideration. The

cheapest plan I know is to procure gas lime in quantity, and when the roads and ditches are cleaned, to get in an equal quantity of these scrapings, and mix the two together. This, after being allowed to stand for one or two years, forms a most enriching compost for any soil.

Where we grow Roses for exhibition our aim is to enable our plants to get the whole benefit of the manure in a very short time; this being our object, we have to turn all the manure into plant food. We may do this by the application of quicklime and common salt; the quicklime may be added to the soil first, and then watered in with water in which the salt has been dissolved. Salt should not be applied stronger than at the rate of 2 cwt. per acre. (This operation should only be carried out at a time when the Roses are in full growth.)

To ascertain if a soil contain lime, a little of it should be put into a glass vessel and strong vinegar poured on. If the liquid boil or effervesce, this shows that lime is present.

Where land contains already a sufficiency of lime, it will be a waste of time and money to add more, and although all plants contain a certain proportion of lime, still lime itself is more of a stimulant than a manure, as it acts mostly in preparing other manures for the plant, and removing or neutralising noxious matters in the soil. It is said to be the basis of all good husbandry.

As lime turns all the manure in soil into plant-food, most people will understand that when the plant-food is exhausted, more manure must be added to the soil—a water mill cannot work without water to turn the wheel, neither can lime work except it has something to work on.

MANURES.

There are three kinds of manure—vegetable, animal, and mineral. Vegetable manure consists of grass, hay, Potato tops, &c., but the most valuable form, and that most used by gardeners, is turf, or the roots of the grasses and other plants, this being the basis of the material used in potting Roses. Peat, bog stuff, and swamp mud are also vegetable manure; the two latter are useful on sandy or light land.

Animal manures are blood, bones, the excrement of animals, night soil, and bodies and refuse of fish. Blood is generally sold in a dry state, and is said to be a powerful manure. Bones crushed or ground to powder, or dissolved in acid, form an excellent manure. For permanent effect they are best put in as half-inch bones, but where we wish them to act quickly it is better to have them dissolved.

The droppings of animals, otherwise farmyard manure, is the mainstay of the Rose grower. For light soils cow manure is best, as it holds the moisture much longer than any other. Horse manure is more valuable than that of the cow, and is preferable for strong soils. Night soil is a very strong manure, and should be mixed with its own bulk of soil, and be allowed to lie for at least three months before being applied to Roses; then, as a top-dressing, it is excellent; if mixed with coarse ashes the land is better without it. Guano is usually such rubbish that I consider it a waste of money to purchase it.

Mineral manures are principally mineral phosphate, nitrate of soda, sulphate of ammonia, soot, and lime. The last I have already spoken of. Mineral phosphate is now supposed by the authorities to be more valuable, cost for cost, than dissolved bones. It may be had either dissolved or in a natural state; dissolved, it acts quickly; undissolved, more slowly.

House sewage is a very valuable manure for dry lands, but on heavy ill-drained soils only the solid parts can be applied, which are the least valuable.

In the present state of ignorance in which we stand as regards the component parts of Roses, the safest plan to follow is to use farmyard manure principally; the artificials must be looked upon simply as auxiliary to this.

The three principal elements that are removed from soils by plants are phosphates, nitrates, and potash. All these three elements, and many others, are contained in farmyard manure, and they are not present in such quantities or in such forms as to be injurious to plant life. In using artificial manures many people lose sight of the fact that 100 lbs. of ordinary farmyard manure contains about 75 lbs. of water; the phosphates amount to less than half a pound; the ammonia to about three-quarters of a pound, and the potash to less than 1 lb. In applying artificials alone we should be guided by a calculation of the quantities of the aforesaid phosphates, &c., contained in the weight of farmyard manure we are in the habit of applying, and not go much beyond them.

Bones, applied in excess, are apt, on dry soils, or in dry seasons, to burn plants exposed to their influence. The cheapest way to apply potash is to dress the land with clay. This applies only to

light lands; as clay contains potash, heavy lands will probably contain plenty of it.

The land loses its phosphates first, I believe, and to make up for this loss we should apply bones or mineral phosphates; I should prefer the latter, and should suggest that it be used in a dissolved state and strewn on the surface of the soil round the plants, and then hoed and watered in. It may be applied any time, but wet weather should be chosen, so that the rain will act upon it.

The nitrates can be supplied by means of nitrate of soda or sulphate of ammonia (these must be applied with care), while clay will give us the necessary potash.

STIMULANTS.

Except plants are in a vigorous state of health they are not in a position to take up the manures and stimulants administered to them; to weak and sickly plants these are simply poison. A meal that would delight and satisfy a healthy ploughboy would be very unsuitable for a sick person, and the moral here is that our plants must be strong and full of growth when we apply stimulants. Newly potted or weak specimens are best let alone until such time as the pots are full of roots and the plants become strong.

There are certain manures which, besides supplying the plant

that, and a method of planting in triplets without digging the ground. I shall be glad to have the number containing the notes if it can be found.—W. PAGE.

[The article we have found, but as the number containing it is out of print we reproduce the gossip in an abridged form, as not unseasonable at the present time. After referring to the hardiness and productiveness of Vicomtesse Héricart de Thury, the writer goes on to say—Newtown Seedling is my sheet-anchor Strawberry. I have been occasionally deceived in other sorts as to a crop; but in this one never. That, however, is its best recommendation, but it is not devoid of usefulness. By its extreme firmness, high colour, and nice appearance it is the best I know for bottling; it is also useful for preserving, but rather too acid for dessert when there are so many others better. I have grown it for several years, and hope to grow it for several more.]

The two next best, and best of all for general purposes and midseason, are President and Sir Joseph Paxton. The longer I grow President the better I like it for light land, and am certain it is the Strawberry for a non-strawberry soil. The crop is immense, and superior in this respect to Sir Joseph Paxton, but a trifle inferior in flavour, though not much. President requires more room than any other variety I grow. The rows should be quite 3 feet apart to allow its fine fruit bunches to spread and have air. Last year I had it less than 2½ feet distant, when the fruit overlapping and lying one on the other was one-half spoiled. I took out

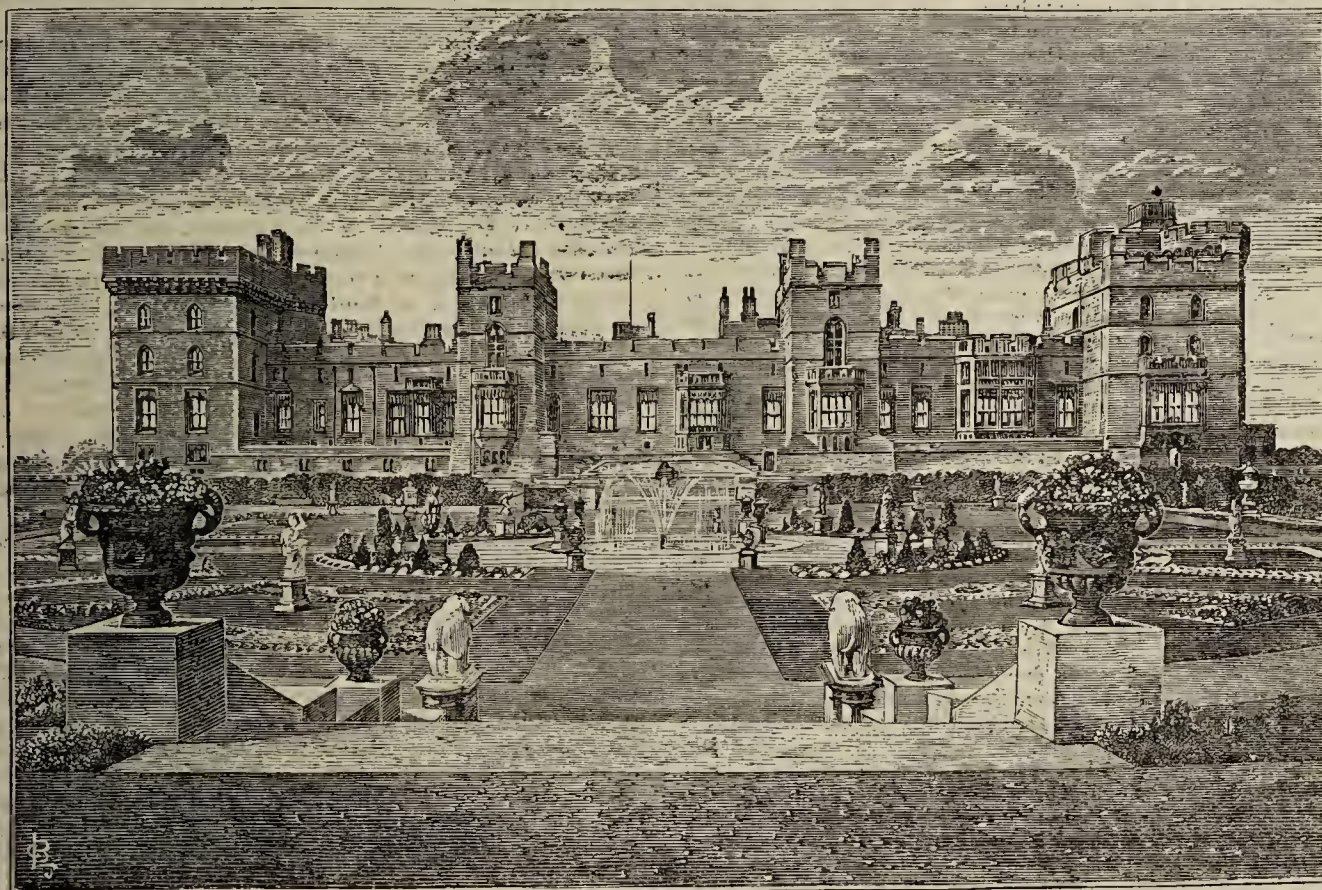


Fig. 83.—THE TERRACE GARDENS, WINDSOR CASTLE. (See page 510.)

with substances which form some of its component parts, also serve as stimulants, and when present in the soil, enable the plant to absorb or take up a larger quantity of other manures, and so make a quicker and more vigorous growth. These stimulants, I believe, all contain ammonia, or in other words, nitrogen. Nitrate of soda or sulphate of ammonia are the two principal substances used. But perhaps the safest plan to follow is to make up a tub with fresh horse droppings and soot, and to occasionally give our Roses a dose of this, diluted to the colour of pale ale. The artificials, if preferred, must be used with the greatest caution; for pot plants, a pinch of either in a two gallon can of water will be quite sufficient; for outdoor plants more may be used, but it is better to err on the safe side. The spring is the time to apply these stimulants to outdoor plants, and as they are very volatile, they should be applied in wet weather, or when the land is moist. They are also useful when the buds are showing colour, and to give a finishing touch to both foliage and flowers.—D. GILMOUR, JUN.

(To be continued.)

STRAWBERRY GOSSIP.

I REMEMBER some years ago reading an article under the above heading by Mr. J. Wright. A variety—Newtown Seedling—was mentioned in

every alternate row, and this year have more than double the quantity of fruit from just half the number of rows, and I adduce that as the best argument for plenty of room. President has one advantage over most, if not all others. After the first gathering of large ripe fruit, the smaller green ones continue to grow larger, and do not, as is common, lie still and ripen small. I do not mean to say that all the small ones get large, but they do this to a greater extent than any other variety.

After President comes that fine sort Dr. Hogg, but the little ones of this do not get big. The big ones, however, are fine, indeed, alike in size and quality. It is not so hardy as those previously named, neither in frost nor wet-resisting qualities, but is, nevertheless, thoroughly recommendable. It will grow on lighter, poorer soil than British Queen, yet I will put the latter and Dr. Hogg together, and pay due and loyal respect to both.

Now for lates: and here Elton Seedling comes in, but not all alone in its glory. As a distinct sort Late Prince of Wales, kindly sent me by Mr. Record, is fully in late, and Eleanor (or Oxonian) is very large, late, and useful, but not a heavy cropper, nor rich.

And now a word as to culture. This must vary according to soils, but in all cases planting early in July if possible; ground, however, is not always vacant at this time. The most fruit from a given quantity of ground I have obtained this year has been from plants put in, just a foot apart all ways, on the 1st of August last year. As soon as fruiting is over, and in showery weather, half of these will be lifted and planted, and

will again do well; but if the weather continue hot they will be thrown away, and young plants again depended on. Another favourite plan of mine is at every 2½ or 2½ by 3 feet to put in three stout young plants in a triangle with a base of 6 inches. No one at next gathering-time can, without very careful examination, tell these from established two and three-year-old stools. In strong soils thorough deep-digging, and making the ground rich to a depth of 15 to 18 inches, and a top-dressing of manure on the surface, will be all that is really necessary. If much deeper than this, and without surface-dressing, I have often observed the plants run too much to leaf. For fruit of all kinds there is nothing like surface roots, but they must be taken care of.

Strawberries like firm ground, and in a soil naturally light and warm I can get better crops by not digging at all, either at planting time or afterwards. I render acknowledgments to Mr. Radelyffe for this hint that I have put into practice. At desired distances scoop a hollow in the soil capable of holding 2 gallons of water. Soak this thoroughly with liquid manure, level-up, and put three plants in each spot. The manure water should be strong, and the hollow 1 foot in diameter. I have tried different sorts of measure, and find 2 ozs. of guano and 1 oz. of salt to the gallon the best of all, and better indeed than holes dug out 18 inches deep and filled-in and trodden with good manure. For a time the manured roots took the lead, but after two years the liquid-manured roots produced the most fruit, and best withstood the drought. It is the firm soil that does it. I always surface-dress my Strawberries in the autumn with half-rotted manure, or not quite half-rotted, and never take it off again. This may not be so necessary in districts with a heavy rainfall, but I know it is good practice here. Last autumn, considering the tremendous wet, I was for once doubtful as to the wisdom of the practice and only did a portion, but those dressed are much the best, and I decide that if it is good in a wet season it must be good in a dry one, at any rate where the soil is light. The winter's rains clean the manure perfectly, and leave a surfacing of smooth sweet straw, better packed than any hand could pack it, for the fruit to rest on. Where this top-dressing is not given, the best recipe to keep the fruit clean is Mr. Peach's—viz., straw cut into inch lengths. It is handy to apply and snug when it is there, and is the best slug-antidote I know. I have watched the hungry "varmint" in their pilgrimage to the fruit, and am bound to say rejoiced in their treadmill-like work in turning over, and instead of the straw being the foundation for the slugs, the slugs were a foundation for the straw, and they were glad to get out of it. This would not have been the case had it not been cut into inch lengths.

It is important that clean surfacing be applied early, and it is the greatest possible mistake to defer it until the fruit is ripening. No one can possibly do the work then without more or less injury to the fruit-trusses. Strawberry trusses are as impatient of being disturbed as the haulm of Peas, and neither can be meddled with without damage. Early surfacing has also another valuable point in its favour, in arresting evaporation and retaining the earth's moisture. It should be applied before the plants are in bloom, and it can never be done so well afterwards. A sprinkling of salt in early spring at the same time and in half the quantity of that given to Asparagus, or, to be more definite, about half an ounce to the square yard, is of much value, but more will not hurt if it be kept out of the crowns. By its deliquescent nature it keeps the ground moist and cool. It is certain to do good in dry localities to more things besides Strawberries. It should be applied previous to the straw surfacing. By salting and surface-dressing in autumn and early in spring I have had no occasion to water, although much hot and dry weather has prevailed. But—and this is important—I set aside two rows; one had no salt, and the other was not surfaced until the fruit changed colour; both these we have been compelled to water copiously, and then could not get the fruit so fine as the rest, but it was equally plentiful in point of numbers. Every point urged in this gossip is based on actual and careful practice.

I have never been sufficiently careful or curious as to note the relative value of the first or second roots of runners, but I do know that barren plants will produce barren progeny; I do not say invariably, but sufficiently so to make the practice of planting from them an unsafe one. Just another hint: I cannot grow British Queen or Dr. Hogg by runners from my own plants, but if I have them from a thorough strong Strawberry soil I can get fair crops. I am certain this is a point of considerable value, and will in many gardens make all the difference between Strawberries and no Strawberries. Let those who grow this fruit under difficulties try it, and I am very sanguine they will do as I do, "try again."

COLOURS IN EXOTIC FERNS.

ONE of the characters through which Ferns in general command the greatest amount of attention is the various tints of colour of many of the species and varieties in cultivation. The different modes of growth and the immense diversity of forms of certain genera are by themselves sufficient to enable anyone to dispense with the help of plants belonging to other families in the formation of groups of most decorative character or of the greatest interest. Leaving aside for the present those highly curious or fantastic forms of Ferns to which we will refer later on, such as the Elephant's Ear Fern (*Dictyoglossum crinitum*), the Stag's Horn Fern (*Platycerium alcicorne*), the Bird's Nest Fern (*Asplenium nidus avis*), the Ivy-leaved Fern (*Hemionitis palmata*), and others which, although used sparingly in the grouping of these charming

plants, should however be present if only in single plants of each kind; and keeping only to the more natural sorts, or at least to those with foliage of a shape more in conformity with the general idea of what a Fern should be, we still find a really imposing number of plants possessing the greatest power of attraction on account of the beautiful tints particular to species whose foliage in its youth is as bright in colour as many flowers and of quite as long in duration. Take, for instance, the most numerous genus of Ferns provided with coloured foliage—that of the Maidenhair Ferns—and compare the difference in shape, size, and colour between all other Ferns and the deservedly popular *Adiantum macrophyllum* and its rare variety *bipinnatum*, with their pinnae and pinnules at first of a lovely deep rose colour gradually fading to a yellowish green, which they retain until they have reached their maturity, and the advantage derived by comparison will undoubtedly be in favour of that handsome West Indian species of erect growth and sturdy habit, which requires stove treatment. Even the beautiful *Adiantum farleyense*, naturally and at all times the most handsome member of a whole genus which contains so many interesting and exceedingly decorative species, has when in young state its lovely appearance enhanced by the tender colours of its fronds, which then assume before taking their permanent pale green colour all the intermediary tints from the brightest pink to a very pretty pale yellowish green, the combination of which renders the plant most attractive.

Of other Maidenhair Ferns with coloured fronds we may note among the strong-growing kinds, the tropical American *A. cardiophyllum*, a stove Fern of stately appearance, producing fronds which under liberal culture frequently attain 6 feet in length, and which in their young state are of a particularly light greyish pink colour; *A. pentadactylon* and *A. Sanctæ-Catharinæ*, two South American species somewhat similar in appearance, the former with fronds of a beautiful bright red in their youth, and the latter possessing a metallic colour quite unique among Maidenhair Ferns. In growth these two species much resemble the better known *A. trapeziforme*, which like them is of South American origin, but whose foliage in its young state is of a lovely pea green colour, which it retains for a very long time. Another very handsome species which, as its name indicates, comes from Peru, and which rivals if it does not surpass *A. trapeziforme* in the size of its fronds and the length of their drooping divisions, is the *A. peruvianum*, which, on account of its pendant habit and also by reason of its bold and strongly marked character, at once commands the attention of all beholders. Its fronds, which frequently reach 4 feet in length, have when partially developed a very peculiar light greyish pinky colour, which forms a most pleasing contrast with the dark green tint of the mature fronds. The two *Adiantums*, *Veitchi* and *cyclosorum*, equally of Peruvian origin, are also among the best coloured of the strong-growing kinds known. The former has all the appearance of a much enlarged form of the common Maidenhair Fern, but with fronds erect and pinnae of a glorious colour in youth; while in *Adiantum Hendersoni* we have a plant belonging to that interesting class of Maidenhairsts with a peculiar hirsute foliage which comprises *A. pulverulentum*, &c., but its young fronds are of an intense red shining colour, which gradually changes into the most beautiful bronzy and very effective tints, which they retain until they assume the permanent dark green colour which distinguishes this plant from almost any other Maidenhair Ferns.

But these attractive colours are not exclusively the character of strong-growing kinds, for nothing could be brighter than the young growth of the comparatively dwarf Peruvian species *A. tinctum* and *rubellum*, which rarely exceed 8 inches in height, and whose young fronds, which are abundantly produced from a central crown, are always more or less decorated with the roseate hue which has suggested their names. The same may equally be said of the foliage of *A. rhodophyllum*, a natural hybrid of garden origin which grows to about 15 inches high, and the pinnules of which, when first developed, are of a bright crimson, they gradually change with age to a rosy fulvous colour and finally to a soft very pale green. The remarkable diversity of colours presented by the pinnules at the different stages of their growth, and which are all to be seen on the plant at the same time, renders this Maidenhair one of the most decorative Ferns in cultivation. Equally precious to the collections are the metallic and bronzy tints which distinguish the equally small-growing New Zealand *A. fulvum* and *hispidulum*, both of which succeed very well under cool treatment.

Besides the Maidenhairsts there are other Ferns with fronds of equally bright colours, such as the gigantic *Davallia polyantha*, a native of the Malayan Archipelago, whose fronds of a beautifully bright purple colour at first, gradually fade into a coppery tint which, as is also the case with those of another gigantic Malayan Fern, the *Didymochlena truncatula*, possessing the same chameleon properties, is retained for a very long time. The fronds of

Blechnum corcovadense and those of the smaller *B. occidentale* are also of a particularly attractive colour during their youth; while those of the tropical American *Polypodium appendiculatum* also deserve a special mention on account not only of their transparency, which is uncommon to all other Ferns in cultivation, but also for the deep purple colour which is peculiar to them; both characters which are shown to perfection when the plant is grown in hanging baskets against the light, in which position it delights. In *Osmunda palustris* we have a Brazilian evergreen species of the Royal Fern of diminutive size, but which produces in great abundance its lovely pale fronds, which in youth are equal in colour to the best of the Maidenhair Ferns above quoted. The genus *Lastrea* also contains several species very attractive on account of their bright colours, as besides the variegated Japanese form of *L. aristata*, we have in *L. erythrosora* and *varia*, two species equally of Japanese origin, some superb bronzy tints unequalled by the foliage of any other Ferns; but of all that numerous genus the species which has the prettiest coloured fronds is undoubtedly *Lastrea prolifica*, another Japanese plant with leathery fronds finely divided and of a bright pink when partly developed, bronzy afterwards, and finally of a dark shining green, a species doing well under cold treatment. *Doodia aspera multifida*, again, is a plant of small dimensions, but with beautifully coloured crested foliage.

That extensive genus, *Pteris*, also a number of forms with coloured foliage, for independently of the popular forms with white coloured fronds, such as the gigantic *P. argyrea* from the East Indies, the *P. cretica albo-lineata*, of dwarfer stature, the new *P. Mayi*, a natural hybrid of garden origin, which appears to be a crested form of the latter, and promises on account of its hardy texture to become one of the most useful plants for room decoration. We have in *P. aspericaulis* a plant of good free growth, attaining noble proportions, and furnished with foliage whose bright colours when only partly developed can vie in comparison with that of the best Maidenhair Ferns. The pearl of that genus, however, is the beautiful though somewhat more delicate East Indian *P. tricolor*, whose fronds are most beautifully variegated; the centre of each of their divisions forms a space of bright rosy red colour, with a margin of white on each side, the whole set off by the contrast of the rich shining green of the outer portion of the limb of the frond.

Then, again, what can be more effective than the beautiful glaucous tint of the foliage of the strong-growing tropical American *Polypodium aureum* and *sporodocarpum*? Their colour is particularly useful to the decorator when the plants are used in companionship with the dark shining *Polystichum setosum*, certain *Marattias*, *Aspleniums*, *Lastreas*, &c., or in conjunction with the *Adiantums venustum*, *speciosum*, *concinnum latum*, *Davallia Mooreana*, *Pteris scaberula*, *Osmunda japonica corymbifera*, and many other kinds whose pale green colour blends so admirably with darker tints and shows them to the greatest advantage. If to the above-described plants we also add the several species and varieties of Silver and Gold Ferns, and a host of plants with intermediate tints, we shall find ample materials for making very effective groups composed exclusively of Ferns, all beautiful in appearance, elegant in habit, and of a duration equal to if not surpassing that of flowering and other decorative plants combined.—THEO.

MELON SUPPORTS.

MR. IGGULDEN appears to be an adept in treating the readers of the Journal to something startling and original, the latest of which is growing Melons, as I presume he means, on wire trellises without supporting the fruit. That he will get very few practical gardeners to follow his ideas I feel convinced, but as there are many amateurs who read the Journal, with the view of assisting them in adopting the best methods, I would strongly advise them not to follow it either, as I am positive more disappointments and failures would follow than if a little care was bestowed in making the fruit secure.

I fully admit that this is often done in a very bungling way, but this should not cause the practice of supporting Melons to be condemned as "uncalled" for and useless. I think it would take one very little time to convince themselves that supports are at least the safest, and for other reasons much the better plan. If Melons are only grown properly neither "Royalty" nor anyone else can detect in the appearance or flavour whether they had received the support of saucers, strips of raffia, or anything else. I should think after all Mr. Iggulden only intends a little banter.—E. PARKER, *Impney Gardens*.

FASHION IN FLORAL ART.

THAT there is no law which controls fashions is everywhere apparent, and the ever increasing number of floral artists who are constantly on the alert to create some new design which is likely to meet with the tastes of a flower-loving public. The much-admired Maidenhair Fern (*Adiantum cuneatum*), which in its relationship to flowers artistically

arranged has so long been an indispensable favourite, seems for the moment to be losing ground, though there is little fear but that it will always be in demand in the majority of floral designs. The reasons for its being less in request just now are various, primarily perhaps on account of its sudden collapse when subjected to much exposure, for if ever so hardly grown it is not calculated to endure a great amount of hardship when severed from the plant. This has been the experience of many who have placed some of their handiwork in the shape of a floral wreath, cross, or other design in competition upon the tables of their local horticultural societies. Fresh and bright no doubt when staged, and possessing that lightness and elegance which should grace all floral devices, but which ere the judges came to make the awards, was suffering considerably from the exposure to which it had been subjected.

In place of the Maidenhair various coloured leaves are fast coming into general use, and if carefully associated with the flowers they not only considerably economise the latter, but introduce varying tones of colour which we cannot always command in flowers. The majority of this coloured foliage may be gathered from trees, shrubberies, and hedgerows in the autumn. Those who have experience in large gardens or in nurseries where deciduous trees and shrubs are grown abundantly will not need reminding of the many exquisite shades of colour to be found in foliage in autumn. Very pleasing instances of how effectively both foliage and fruits of wayside plants may be utilised may often be seen at various harvest festival services in country places, and it is worthy of note that in the isolated districts decorations of this kind are carried out extensively, and in a manner highly creditable to the workers.

Apart, however, from such decorations as these, the fashion for personal adornment is considerably changed, buttonholes and sprays being frequently seen with coloured leaves which are fast coming into general use, and which certainly make up a very appropriate arrangement on the whole. Very natural is it, then, with such a change as this the Ivy should hold a very prominent position, and especially that known as the "Heidelberg," a variety with small leaves and of a beautiful reddish bronzy hue, and which in clever hands may be worked up most effectively with flowers of various hues, and are even pleasing alone when several are placed artistically together. Whether such a departure as this will be beneficial to the English florist generally is a doubtful question, seeing that the majority of these Ivy leaves are imported from France, which, coupled with the disuse of the Maidenhair Fern, does not increase the advantages of the Britisher, and especially so when we consider that although we can grow Ivy abundantly in England, we cannot obtain that pleasing hue which gives it the preference. But while the Ivy in question makes a very appropriate arrangement it is generally admired. Yet there is no reason to stay there, for we have a great variety of other foliage which in many floral designs may be utilised in various ways, each in themselves unique. Take, for example, the lovely little *Panicum variegatum*, which is invaluable, especially in crosses, wreaths, and many ordinary bouquets and sprays; it gives an air of lightness and elegance to the arrangement which is much to be desired, especially if disposed in an easy and natural manner. At some of the Chrysanthemum shows last year the use of coloured leaves and the general falling off in Maidenhair Fern was particularly noticeable. For instance, a lady's ball dress trail was composed of Roses, Ivy leaves, Roman Hyacinths, Copper Beech leaves, Rose twigs, Bouvardia, and Asparagus plumosus, with not a sprig of Maidenhair Fern in the whole arrangement, which was certainly most effective. In another case, richly coloured Vine leaves, with purple Nut leaves, were effectively used with bronze and gold Chrysanthemums. Very effective and hardy, too, are some of the Berberis, while the miniature sprays of *Lonicera aurea reticulata* invariably work in with any flowers except those of a golden hue. Particularly rich in this respect are the numerous Japanese Maples, but as they are deciduous it considerably diminishes their value. Take, again, the Maidenhair Tree, *Salisburia adiantifolia*, which affords an excellent foliage for many purposes; it is not perhaps sufficiently abundant to be had in quantity, but if the foliage is dried it is ready at any time for use. The White Thorn of our hedgerows, and in many places the leaves of the Brambles, are also pleasing in their varying tints, such as we cannot imitate in flowers during a certain period of the year.

In Azaleas of the mollis section again we meet with hues of red and bronze and some gold, while in the foliage of Roses we have an abundant supply of tints, with centres of green and margins of a reddish hue, which, if preserved, will be found most helpful to those whose time is spent more particularly in artistic work of this kind.—J. H. E.

THE YORK GALA.

IN almost tropical heat this great Yorkshire horticultural Show commenced on the 15th inst. with a larger attendance of visitors than usual. Of course Roses and some of the other cut flowers suffered from the great heat.

PLANTS.—Stove and greenhouse plants were well represented; and with a collection of sixteen plants Mr. Letts, gardener to the Earl of Zetland, was first with capital plants, which included fine Palms, *Aphelexis macrantha purpurea*, and *A. spectabilis*, a fine *Erica tricolor* Wilsoni, and a grand *Anthurium Schertzerianum* Wardi. Mr. Cypher of Cheltenham was second, and his group included a grand plant of *Anthurium Schertzerianum* (Shuttleworth's variety) with quite eighty spathes, *Erica coccinea minor*, fine Crotons, Azaleas, &c. Mr. E. Adams of Newcastle-on-Tyne was third. In the class for six stove and green-

house plants Mr. Letts was first with very fine specimens of *Clerodendron Balfourianum*, *Anthurium Schertzerianum*, *Pimelia decussata*, *Erica Cavendishiana*, *Azalea Chelsoni*, and *Hedera tulipifera*. Second prize J. B. Hodgkin, Esq., with *Erica ampullacea obbata*, *E. Cavendishiana*, *Aphelaxis macrantha purpurea*, a very fine *Ixora Williamsi*, *Clerodendron Balfourianum*, and *Anthurium Schertzerianum*, very good. Mr. Cypher was first for three *Ericas*, a grand *Cavendishiana*, tricolor *Wilsoni*, and a very fine ventricosa *hirsuta alba*. Some very handsome *Crotons* were staged. Mrs. Gurney Pease's first-prize four—viz., *Warneri*, *Hammondi*, *Chelsoni*, and *Andreas* were superb specimens in fine character. The second prize plants from J. H. M. Sutton, Esq., were specimens of large size and well coloured. Palms, Ferns, *Dracenas*, and ornamental plants were plentiful and good. Bedding plants in groups and in masses of each kind are always well shown at York; and on this occasion Mr. R. Simpson, nurseryman, Selby, took the first prize for sixteen varieties, all well grown; amongst them a grand plant of *Hydrangea Thomas Hogg*, tied down so as to form a carpet of from sixty to seventy fine trusses; and a similarly trained specimen of *Earl of Beaconsfield Fuchsia*, 3 feet through and well bloomed. Mr. Letts's six fine-foliaged plants, which took the first prize, contained a grand *Cycas revoluta*, and well coloured *Crotons Johannis* and *angustifolius*.

The generous Orchid prizes offered did not bring so many competitors as was expected. For the Jubilee prizes of £21, £15 15s., £10 10s., and £5 5s. for sixteen Orchids, there were but two exhibitors. Mr. Cypher was first with beautiful plants—viz., *Cattleya Mossiae Rothschildiana*, *Lælia purpurata alba*, *Dendrobium thysiflorum* with thirteen racemes; *Lælia purpurata Brymeriana*, *Calanthe veratrifolia*, *Epidendrum vitellinum majus*, *Cattleyas Mendeli*, *Mossiae*, and *Mossiae magnifica*, *Saccolabium guttatum*, a fine *Dendrobium Bensoniae*, *Cypripediums Lawrenceanum* and *barbatum*, *Odontoglossum vexillarium* and *vexillarium roseum*, and the seldom seen *Cattleya lobata*, with eight fine blossoms. The second prize for sixteen Orchids was awarded to Mr. Atkinson, gardener to C. Broadwood, Esq., *Dendrobium Bensoniae*, *Odontoglossum vexillarium*, *Cattleya Sanderiana*, and *C. Warneri* being especially good plants. In the class for eight Orchids, Mr. Cypher was first with *Lælia purpurata alba*, *L. Brymeriana*, *Dendrobium thysiflorum*, *Odontoglossum vexillarium*, and *Cattleyas Mendeli*, *Mossiae*, *Mossiae grandiflora*, and *labiata Warneri*; also first for four Orchids, the second prize for four going to W. Bateman, Esq. For Messrs. Backhouse & Son's special prizes for four Orchids, W. Bateman, Esq., was first, and T. M. Weddall, Esq., second. Mr. J. Charlesworth, Orchid importer, Bradford, sent a good display of *Odontoglossums*, *Cattleyas*, &c., and Mr. Harrison, St John's Grove, Leeds, a few well grown *Cattleyas* and other Orchids.

A large tent was devoted to groups of plants. In the class for a group in a space of 250 square feet there were eight exhibitors, and the groups were all fine. Two of these were placed equal first. One set up by Mr. McIntyre, gardener to Mrs. Gurney Pease, contained some bright *Crotons*, Palms, *Azaleas*, with flowering plants, Ferns, &c., and an artistic telling arrangement was produced. The other equal first was set up by Mr. Arthur Webb, gardener to J. H. M. Sutton, Esq., Newark, was quite different in design, artistically set up, and pleasing, but wanting in brightness. As two first prizes were given no second prize was awarded, and the third was awarded to Mr. Lyon, gardener to Viscountess Ossington, and fourth to Messrs. A. Simpson & Sons, York. Extra prizes were also awarded to other exhibitors. In the class for smaller groups for amateurs there were three exhibitors. Mrs. Gurney Pease was placed first, T. L. Brogden, Esq., second, and Viscountess Ossington third. There was too great a preponderance of foliage in these three exhibits, and a paucity of flowering plants.

Good prizes for Roses, both in pots and cut bloom state, were offered, and in the cut bloom department Mr. Henry May of Bedale took the first prizes for seventy-two, forty-eight, thirty-six, and twenty-four blooms respectively. Roses in pots were in good numbers, and some of the plants were very creditable, but Paul and Turner's style of growing has not yet been reached by the northern growers.

Pelargoniums are always to the front at York, and the plants staged by Mr. McIntosh, gardener to J. T. Hingston, Esq., of York, won the admiration of all the horticulturists present, and his twelve plants which took the first prize of £12 was the finest ever seen at York, and that is saying very much. Large handsome specimens, strong healthy foliage, naturally tied to support the blooms safely, but really seeing very little of the tying, and with full sized blooms, unstinted praise was so generally expressed for his plants throughout. For twelve plants, first Mr. McIntosh. Mr. Eastwood, gardener to Mrs. Titley, Leeds, for fine plants was a capital second; third Miss Steward, York. In the class for six Pelargoniums, Mr. Eastwood was first with superb plants—viz., *Triomphe de St. Amand*, *Pericles* and *Queen Bess*, very much alike; *Albion*, *Kingston Beauty*, and *Old Rose Celestial*. Second Mr. McIntosh, with six very fine plants of sterling market varieties. For three Pelargoniums,—First Mr. McIntosh, second Mr. Eastwood, third Miss Steward. The Pelargoniums throughout were very fine, and some marvellous plants of *Kingston Beauty* were shown. Zonal Pelargoniums were as usual very fine, Mr. Eastwood carrying off the first prizes for twelve and six plants, all in the highest possible condition of good cultivation. For twelve Messrs. Pybus & Son were second and Miss Steward third, all very fine specimens. Double Pelargoniums, Bronzes and Tricolors, were not quite up to the usual mark. Some excellent *Fuchsias*, herbaceous *Calceolarias*, hardy Ferns. Mr. McIntosh had in one of his collections of Pelargoniums a fine semi-double sport from Madame Thibaut named Miss Winnie Hingston, a very promising variety.

CUT FLOWERS.—The cut herbaceous flowers were in good form, and

a grand competition. Cut exotic blooms were also very fine, the first prize for twelve being gained by Mr. Williams, gardener to St. Barleins, Esq., for grand blooms. A. Heinze, Esq., was first for six varieties, all Orchids, a superb stand including nine blooms of *Anguloa Clowesi*, but badly staged. Messrs. Dobbie & Co., florists, Rothsay, sent fine Fancy Pansy blooms, many of them of their own raising; Mrs. Maxwell, a new one, will be welcomed by Pansy growers, and such fine varieties as William Cuthbertson, A. Strachan, Mrs. T. McComb, William Dean, Mrs. G. P. Frame, were amongst the best blooms staged in good condition. A really rich glossy black self Pansy named W. G. Howie, of good form, will be welcomed by Pansy growers and exhibitors. This firm also contributed a fine collection of cut *Violas*, and a wonderful improvement has been made in these most valuable decorative plants. To Mr. Baxter of Daldowie a high meed of praise must be given for some very beautiful new varieties, such as York and Lancaster, Spotted Gem, Dawn of Day, Ethel Baxter, Bullion, a very fine yellow; Mina Baxter, Mrs. Baxter, &c. Queen of Scots is a decidedly improved Countess of Kintore. Merchiston Castle is a miniature Fancy Pansy of great beauty, rich maroon violet, with a wire edging of creamy white, beautiful, but it is surpassed by *Admiration*, shown by Mr. Dobbie, and it is a better grower. *Morning Star* is another lovely variety of this type. *Clipper* is a beautiful variety, almost white, with a rich purple centre. *Blue Cloud* is an improved *Skylark*; white, with a bright margin of blue. Messrs. Harkness & Sons, nurserymen, Bedale, contributed a display of Fancy Pansies and *Violas*; amongst the former were such fine collections as Ellen Dalghish, Charlie Stansell, May Tate, and others, and their blooms of *Viola Mrs. Baxter* were grand. So also *Firefly*, light rosy purple, with lighter margin. This firm staged forty-eight splendid *Maréchal Niel* Rose blooms, which took the first prize in the class for Messrs. W. Wood & Sons' prize for the best stands of Roses, which had been grown with their liquid manure, and Messrs. Harkness also carried off the first prize for cut herbaceous blooms, and in this class there was good competition. Messrs. Backhouse & Son of York staged handsome cut *Rhododendrons*, *Pæonies*, *Iris*, and other herbaceous plants; so well set up as to form a decided feature of the Exhibition; and Messrs. Kelway & Son of Lanport set up ten boxes of *Pyrethrum* blooms, single and double varieties.

A few excellent bouquets were staged, Messrs. Perkins & Sons, Coventry, taking first prize in each class for two ball bouquets, two bridesmaid's bouquets, and two hand bouquets. These were all beautifully finished bouquets. Mr. John Cragg, gardener to A. Heinze, Esq., was a good second in each class with handsome bouquets.

FRUIT.—This part of the Exhibition was well supported, several leading cultivators being represented. For a collection of eight varieties Mr. McIndoe was first with *Scarlet Premier Melon*, *Queen Pine*, *Grosse Mignonne* and *Bellegarde Peaches*, *Brown Turkey Figs*, *Pitmaston Orange Nectarines*, *Black Hamburg* and *Muscat Grapes*. Second Mr. R. Dawes, gardener to the Hon. Mrs. Meynell lugram, who had excellent *Black Hamburg Grapes* and a fine *Queen Pine*. Third Mr. Edwards, gardener to the Duke of St. Albans, who had capital *Black Hamburg Grapes*, a good *Queen Pine*, and a fine *Melon* named "Luscious and Melting." Fourth R. H. C. Nevill, Esq. (Mr. T. Hare, gardener), whose collection was a dish of fine *Murray Nectarines*. For six varieties of fruits, first Mr. J. Edwards with extra fine *Black Hamburg Grapes*, *Foster's Seedling ditto*, a good *Queen Pine*, a fine *Eastnor Castle Melon*, *Hale's Early Peach*, well coloured *Elrue Nectarines*; a capital collection. Second Mr. McIndoe, third Mr. R. Dawes, fourth Mrs. Gurney Pease.

For a collection of four fruits, first Mr. Clayton, gardener to J. Fielden, Esq., Grimston Park, with fine "A Bee" *Peaches*, *Violette Hative Nectarines*, well finished *Black Hamburg Grapes*, and a *High Cross Hybrid Melon*. Second Mr. Duncan, gardener to C. H. Wilson, Esq., M.P., third Mr. Edwards, fourth Mr. McIndoe. Only three *Pines* were staged, all *Queens*, and none first rate. Ten dishes of *Peaches* were staged. First Mr. Divers, gardener to J. F. Hopwood, Esq., for fine fruits of *Royal George*. Eight collections of *Black Hamburg Grapes* were exhibited; Mr. Allsop, gardener to Lord Hotham, taking the first prize for some well finished bunches, also first prize for white *Grapes*, highly coloured well finished *Blackland Sweetwater*. Excellent *Melons* were staged.

Brilliant weather, too hot in reality for the cut flowers, brought an immense assemblage of visitors, and as the profits of this gala is to be given to the York charities, there is a reasonable hope that a good sum will be at the disposal of the Committee.

MISCELLANEOUS.—Messrs. Rd. Smith & Co., nurserymen, Worcester, contributed a grand group of specimen *Clematises* of large size and well flowered. Eighteen of these fine specimens made an excellent display, the most noticeable being Mr. George Jackman, an extra fine white; *Madame Van Houtte*; *lanuginosa candida*; *Duchess of Edinburgh*, a fine double white; *Fairy Queen*; bluish white, with a pink stripe; *Gloire de St. Julien*; *Lady Caroline Neville*; *Marie Lefebvre*; *Sensation*, very fine and distinct; *Venus Victrix*, double shaded blue lavender, and very handsome; *Lord Nevill*; *Countess of Lovelace*; *Purpurea elegans*, deep purplish-tinted lavender, a fine variety; and *Beauty of Worcester*, producing double and single flowers of a blue-violet shade of colour, and handsome.

Large collections of exotic and hardy Ferns, quite 1500 plants, were staged, not for competition, by Messrs. W. & J. Birkenhead, Sale Nurseries, near Manchester. Amongst these were—*Athyrium regale*, an improvement on *A. plumosum multifidum*, and beautifully crested; *Lastrea montana*, *ramo-coronatus*, a beautiful densely crested form of

A. montana; *Polystichum Pateyi*, a great improvement on *P. plumosum*, a perfectly barren Fern, propagated only by division; *Adiantum Birkenheadi*, *Athyrium plumosum elegans*, *Onychium auratum*, *Nephrolepis rufescens tripinnatifida*, a most beautiful Fern; *Adiantum Mariesii*, *A. neo-caledoniæ*, and a number of North American Ferns. Mr. T. Winkworth, gardener to R. Brocklebank, Esq., Childwall Hall, Liverpool, sent blooms of *Heliotropes*, but they were so withered that they could not be staged. These were—*Swanley Giant*, *White Lady*, *President Garfield*, and *Cheshire Favourite*, which appears to be an improvement on *Swanley Giant*. Mr. John Harrison, St. John's Grove, Leeds, obtained certificates for seedling Zonal *Pelargoniums* *Princess Ida* and *Princess Alice*, and for a new *Cattleya Mossiæ Harrisoni*, an imported plant from Venezuela. Certificates were also awarded to Messrs. Birkenhead for *Adiantum Birkenheadi*, *Athyrium regale*, and *Nephrolepis rufescens*.

ROYAL METEOROLOGICAL SOCIETY.

THE concluding meeting of this Society for the present session was held on Wednesday evening, the 15th inst., at the Institution of Civil Engineers, 25, Great George Street, Westminster, Mr. W. Ellis, F.R.A.S., President, in the chair.

The following papers were read:—

1, "Amount and Distribution of Monsoon Rainfall in Ceylon Generally, with Remarks upon the Rainfall in Dimbula," by Mr. F. J.

to 2 or 3 feet overhead, numerous globes of light, the size of billiard balls, which were moving independently and vertically up and down, sometimes within a few inches of the observers, but always eluding the grasp. Now gliding slowly upwards 2 or 3 feet, and as slowly falling again, resembling in their movements soap bubbles floating in the air. The balls were all aglow, but not dazzling, with a soft superb iridescence, rich and warm of hue, and each of variable tints, their charming colours heightening the extreme beauty of the scene. The subdued magnificence of this fascinating spectacle is described as baffling description. Their numbers were continually fluctuating, at one time thousands of them enveloped the observers, and a few minutes would dwindle to perhaps as few as twenty, but soon they would be swarming again as numerous as ever. Not the slightest noise accompanied this display.

3, "Ball Lightning Seen during a Thunderstorm on July 11th 1874," by Dr. J. W. Tripe, F.R.Met.Soc. During this thunderstorm the author saw a ball of fire of a pale yellow colour rise from behind some houses, at first slowly, apparently about as fast as a cricket ball thrown into the air, then rapidly increasing its rate of motion until it reached an elevation of about 30°, when it started off so rapidly as to form a continuous line of light, proceeding first east then west, rising all the time. After describing several zigzags it disappeared in a large black cloud to the west, from which flashes of lightning had come. In about three minutes another ball ascended, and in about five minutes afterwards a third, both behaving as the first, and disappearing in the same cloud.

4, "Appearance of Air Bubbles at Remenham, Berkshire, January,



Fig. 84.—BUCKINGHAM PALACE GARDENS. (See page 510.)

Waring, M.Inst.C.E. The principal feature in Ceylon as determining both the amount and distribution of rainfall is a group of mountains situate in the south central portion of the island, equidistant from its east, west, and south shores. The south-west and north-east monsoons in Ceylon may be said respectively to blow steadily from May to August inclusive, and from November to February inclusive. In March and April, and in September and October, the weather is more or less unsettled, and no regular monsoon or direction of the air current is usually experienced. After giving details of the rainfall at twenty-five stations, the author concludes by remarking upon—1, The effect of the mountain zone in determining the amount and distribution of the rainfall; 2, The apparent gradual veering of the rain-bearing currents of air as each monsoon progresses. 3, The relative insignificance of the south-west monsoon as compared with the north-east monsoon in inducing rainfall. 4, The cause of the large general rainfall of the north-east monsoon throughout the island generally as compared with that of the south-west monsoon; and 5, The influence of the gaps in the external ring of the mountain zone, and of the central as well as the other ridges in it, in determining the amount of rainfall within the zone and in the neighbouring districts outside it.

2, "Note on a Display of Globular Lightning at Ringstead Bay, Dorset, on August 17th, 1876," by Mr. H. S. Eaton, M.A., F.R.Met.Soc. Between 4 and 5 p.m. two ladies, who were out on the cliff, saw surrounding them on all sides, and extending from a few inches above the surface

1871," by Rev. A. Bonney. Between 11 and 12 A.M. a group of air bubbles of the shape and apparent size of the coloured india-rubber balls, that are carried about the streets were seen to rise from the centre of a level space of snow within view of the house. The bubbles rose to a considerable height, and then began to move up and down within a limited area, and at equal distances from each other, some ascending, others descending. These lasted about two minutes, at the end of which they were borne away by a current of air towards the east and disappeared. Another group rose from the same spot to the same height with precisely the same movements, and disappeared in the same direction after the same manner. Mr. H. C. Russell, F.R.S., of Sydney, described a fall of red rain which occurred in New South Wales, and exhibited, under the microscope, specimens of the deposit collected in the rain gauges.

THE ROYAL GARDENS.

THE celebration of Her Majesty's Jubilee is such a memorable event this week, and horticulturists are so notable for their loyalty, that a most fitting opportunity is afforded in our especial province of referring to the Queen's principal residences and gardens. In a country so famed for horticulture as Great Britain, abounding in such magnificent gardens, and ruled by a lady of such cultivated taste as Queen Victoria, we naturally look for something of an unusual

character in what must be termed the leading establishments of the kingdom, and all know how much Prince Albert's enthusiastic love of gardening was shared by his Royal Consort.

FROGMORE.

Frogmore house and gardens are about a mile from Windsor Castle, and are situated in the Home Park, with the mausoleum and the model farm constituting the only portion of the Royal possessions at Windsor from which the public are excluded. The Home Park is to the left of the magnificent three-mile avenue of Elms, which forms such a grand vista from the Castle, and is so well furnished with trees, distinguished by its luxuriant vegetation and rural charms, that it is not surprising it has long been the Queen's favourite retreat when the Court is at the Castle. Frogmore house is a substantial elegant mansion, quite free from all attempts at fantastic adornment, and stands in a beautiful garden abounding in exceptionally handsome trees and shrubs. It was formerly the residence of the Duchess of Kent, who died there in 1861, and it then passed with her other property into the possession of Her Majesty. The garden is a most charming one, laid out in a natural and graceful manner, with spacious rich green velvety lawns sloping to the small but picturesque lake thickly fringed with *Iris pseudo-acorus*, now bearing a profusion of its bright yellow flowers. There are numerous nooks, glades, and tree-shaded walks, bold clumps of trees and shrubs, and single specimens of remarkable size and beauty. The Conifers thrive most luxuriantly, and one grand example of *Thuia Lobbi* (*T. gigantea*), is probably the finest in this country, as it forms a dense deep green column, even from base to summit, and now between 60 and 70 feet high. A specimen of this handsome Conifer at Linton Park exceeds 50 feet in height, and well proportioned, but the Frogmore tree is a marvellously fine example, in perfect health. It stands alone upon the lawn, and has an imposing appearance from the terrace in front of the mansion. Numerous handsome *Abies*, especially *A. pinsapo*, are notable, as well as other *Thuias*, *Taxodium distichum* (admirably represented); of the Maidenhair Tree, *Salisburia adiantifolia*, there are some superb trees, and many others could be enumerated, remarkable alike for their size and vigorous health. Favourite shrubs are the Mock Orange and Lilacs, while white and scarlet Thorns add their floral charms during the spring, and the garden is environed by tall Elms, Beeches, and other forest trees, with delightful vistas cut through them at suitable points. A series of beds is devoted to hardy herbaceous and old-fashioned flowers that are especial favourites at Frogmore, and thrive with a luxuriance that is most pleasant to lovers of such plants. There are no elaborate beds of gaudy flowers, but an air of cultured refinement, combined with all the freedom of an old English country garden, most refreshing in contrast with the prevailing formality of modern establishments. We have been favoured with a photograph of the mansion, taken from a picturesque point of view near the lake, and this has been carefully reproduced in the engraving (fig. 85, page 509).

Horticulturally considered, the important portion of the Frogmore gardens is that devoted to the culture of plants, fruits, and vegetables for the supply of Her Majesty's household, and in this respect it is one of the most remarkable in the kingdom. It is a vast establishment, the amount of produce it yields annually is astonishing, while the system of management must be an admirable one that insures a continual succession, and such excellent cultural results as those achieved by Mr. T. Jones. Practical utility is the prevailing character of every department and everything grown; there is no time nor space for fanciful specialities, but an abundant unflinching supply of good quality productions is the object constantly in view, and to the accomplishment of this all efforts are directed. At the other Royal residences, Buckingham Palace, Osborne, and Balmoral Castle, the pleasure gardens are the principal features, but at Frogmore the thirty acres of garden, five acres of which are under glass, are exclusively devoted to the production of the extensive supplies necessary for such an important household. It would be impossible to refer in detail to all that is interesting in these gardens, but a few notes on the chief departments will indicate their character, commencing with the indoor and outdoor fruit. It may be briefly stated that the garden is oblong in form, the longest diameter being from east to west. It is intersected by substantial walls about 8 feet high, and taking both surfaces, there is a total length of wall space occupied by trees of various kinds of six miles, which will give some idea of the labour in training and pruning. The gardener's house—a tastefully designed commodious structure, is in the centre, at the upper part of the garden, and most of the glass ranges run east and west of this against the walls, with detached span houses, pits, and frames innumerable. The principal range is on the south side of a wall continuous from the house, the north side being occupied by the bothy, offices, potting sheds, &c. There are twenty miles of drives to be

kept in order, with broad grass margins that have to be kept cut frequently, and Mr. Jones has a staff of 140 men under his direction.

FRUIT.

GRAPES.—Foremost in importance amongst the indoor fruits are the Grapes, of which an extremely large quantity are grown; compact, serviceable bunches, of medium size, with good berries, well finished, being what are mainly required; sensational bunches being often more trouble than profit. Another point is, that although the vineries are numerous, the Vines have to be somewhat heavily cropped to obtain the requisite supply, and in consequence Mr. T. Jones finds it far better to rely upon young vigorous Vines than upon old ones, which are speedily exhausted by heavy cropping. Many old Vines have been removed, and young ones are being gradually brought on to take the place of others that have done good service in the past. Most of the borders are inside the houses, but the roots of the Vines can find their way to outside borders as they advance, and the inside borders are made up, a small piece at a time, as the roots progress, as a good number of evenly distributed roots near the surface are more under the control of the cultivator. Comparatively few varieties are grown, the early and main supply being derived from Black Hamburgh, with Foster's Seedling as a white; while as late varieties, Lady Downe's and Alicantes are extensively grown, with a few West's St. Peter's, which are specially prized for their quality, Buckland Sweetwater, and some other varieties. The annual amount of Grapes produced is astonishing, and the following record of the weight cut for each month in 1886 is very interesting:—January, 395 lbs.; February, 207 lbs.; March, 215 lbs.; April, 149 lbs.; May, 149 lbs.; June, 220 lbs.; July, 300 lbs.; August, 291 lbs.; September, 296 lbs.; October, 239 lbs.; November, 448 lbs.; and December, 544 lbs., a total of 3814 lbs., or with extras, as gifts, a total exceeding 4000 lbs. The amount for the last month in the year is remarkably high for such a season, exceeding that of July by 34 lbs. The quantity cut in May was also large, as these were all new Grapes, chiefly Black Hamburghs, but in May of the present year even this record has been exceeded, as 301 lbs. of Black Hamburgh and Foster's Seedling were cut. Upon exceptional occasions 100 lbs. of Grapes have been cut at one time, and the resources of the establishment will be severely taxed this year. The earliest Grapes are obtained from Vines in pots, to which a large house is devoted. This is then filled with Strawberries, that will now soon be exhausted and cleared out to make room for Melons, which will be continued until November, when they in turn will be removed and give place to pot Vines again. This is the system adopted for utilising space whenever the houses are not occupied by permanent Vines or fruit trees. The Vines throughout are very healthy, with clean vigorous growth and foliage, and in several cases with remarkable crops of fruit, twenty to twenty-four 2 lb. bunches to a rod.

STRAWBERRIES.—Strawberries form another indispensable crop, as both for forcing and outdoor supplies they are grown very extensively. With them, as with the Grapes, it is found preferable to rely mainly upon one or two well proved varieties than to have a number of uncertain character, and this principle is followed consistently throughout the garden in regard to all crops. Nine thousand Strawberry plants are forced every year of *La Grosse Sucrée* with a few others, but the former is the chief favourite, because it bears a good crop of even fruits that colour well, and possess an agreeable flavour. The disadvantages attending other varieties tried at Frogmore have been that they either produce fine fruits in small quantities or they bear a large number of fruits that unless carefully thinned are very irregular in size, and many comparatively useless. *La Grosse Sucrée* also travels well, and this is an important matter when it is considered that the fruit has to be conveyed to Balmoral when Her Majesty is residing there, and a journey of 600 miles is a serious trial for such a delicate fruit as the Strawberry. The forced plants are placed out each season, and after the second or third year are removed to make room for younger plants. A bed of these planted out last year is in splendid condition this season, and a useful second crop is often obtained the season they were forced. Sir Joseph Paxton, Vicomtesse Hericart de Thury, *L'Aromatic*, Frogmore Late Pine, and Alpines are also grown out of doors, and all seem very promising this year, notwithstanding the hot dry period now being experienced. Most of the beds are carefully netted, and where they are near the paths a little clean straw placed on the latter prevents the fruits being disfigured by dust. The Strawberries are forced wherever there is suitable space, but several houses are devoted to the main supply, and one, a portion of a long range, chiefly occupied with Peaches and other fruit trees, has a moveable stage, which is placed near the front, and upon this the plants are arranged. After the fruit is gathered the stage is removed, a wire trellis is placed in front, and the house is

filled with Tomatoes trained to the wall at the back and the trellis in front, another instance of economical arrangement similar to those already noted. To avoid a break in the succession between the forced and outdoor Strawberries a large frame sloping to the south with a raised sloping bed close to the glass is filled with Strawberries planted out, which can be readily hastened or retarded as desired, or rendered necessary by the state of the supply.

MISCELLANEOUS FRUITS.—Peaches and Nectarines are grown in quantity both indoors and out, either on open walls or with a protector along the top, and there is a large number of beautifully trained healthy fruitful trees, which yield bountiful supplies of good fruits. More varieties are represented of these than of Grapes and Strawberries, and a long season of fruit is obtained. The important point in the culture of these trees, thorough cleanliness, is fully recognised at Frogmore, and seldom do we have the pleasure of seeing so

Negro Largo being found too strong in habit for this form of culture. One long house, a portion of lean-to range 400 feet long, is devoted to cordon Pears on the back wall and a trellis in front. The trees are four years old and just coming into fine bearing condition. Fondante d'Automne, Bergamotte d'Esperen, Baronne de Mello, Pitmaston Duchess, Jargonelle, Anna Nelis, Madame Treyve, Williams' Bon Chrétien, and Winter Nelis are looking particularly well this year, and some clean handsome fruits are developing. Out of doors there are some old trees on the walls which are getting past the best, and will probably be removed. There are also some interesting old trees trained on arches each side of the central walk leading from the gardener's house through the kitchen garden, but they do not give large crops. A plan Mr. Jones has tried on a small scale might well be extended, as the results have been satisfactory. It consists of a strong wooden framework

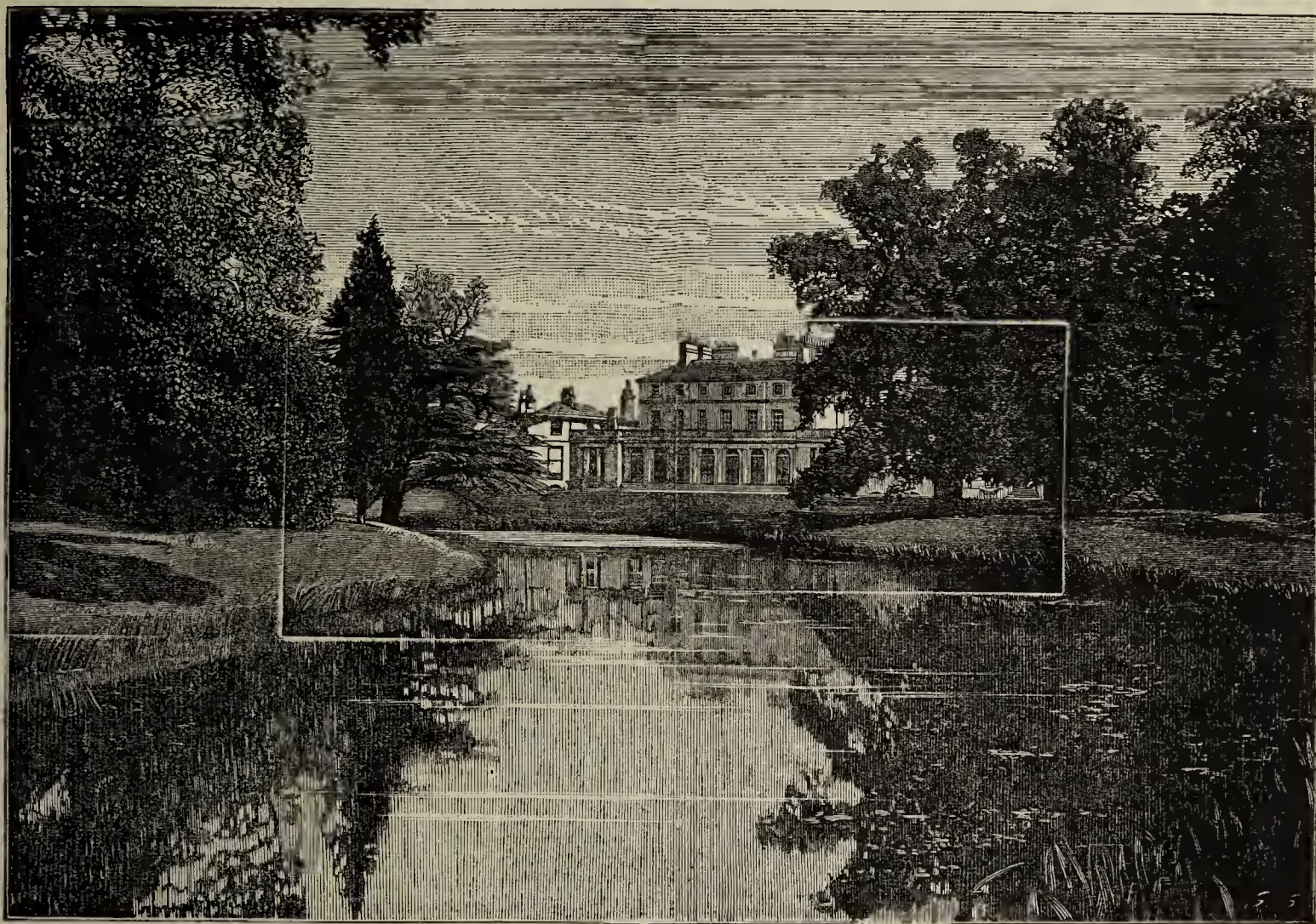


FIG. 85.—FROGMORE HOUSE, WINDSOR.

large a number of specimens free from all insect pests. The trees are well furnished with evenly balanced growth, and the crops indoors are good, though the fruit on outdoor trees is likely to suffer owing to the dry hot weather we are now experiencing. Varieties depended upon chiefly for the chief supply are Peaches Grosse Mignonne, Stirling Castle, Royal George, Noblesse, Victoria, and Buckingham, the principal Nectarine being Elruge, of which there are many handsome trees. Cherries in pots constitute another feature and yield their fruits plentifully. Many of the trees have been stripped of their crops, and turned out of doors for the season, but there are still some good specimens in a late vinery, such varieties as May Duke, Black Eagle, Black Tartarian, and Biggarreus being laden with fine fruits; May Duke is especially handsome, and is much prized. On the walls out of doors Morello and Kentish Cherries are grown in large numbers, and of the former there are on one north wall twelve grand fan-trained trees that occupy much space, and have a wonderful show of fruit. A house is devoted to Figs, in which the trees are planted out in borders, bricked off into compartments 2 or 3 feet square, but the same difficulty is experienced in preventing their becoming too luxuriant. Brown Turkey and Osborn's Prolific are the favourite varieties,

sloping to the south; the Pears are planted in the centre, and the branches trained up and down; upon this framework supports at the top, sides, and lower edge being utilised for canvas or netting on rollers that can be run down at night as protection from frost. With this assistance very fine fruits have been obtained repeatedly from the trees so tried. A succession of Melons is maintained during a long period, a number of houses and pits being specially devoted to them. An excellent substantial loam is used as soil, and plentiful fruits are obtained of Hero of Lockinge, Royal Ascot, Read's Scarlet, Longleat Perfection, and a selection made at Frogmore known as Pale Flesh. Cucumbers are extensively grown; All the Year Round being a favourite early variety, and fruit has been cut in seven weeks from the time of planting out. A large pit is filled with Pine Apples planted out, chiefly Smooth Cayennes, of which there are some grand fruits fit for any exhibition table, and Queens are also well grown. Very seldom indeed do we see Pines in such beautiful condition as they are at Frogmore.

The chief of the other fruits outside are the Plums, to which considerable length of wall is appropriated, the varieties Coe's Golden Drop, Orleans, Imperatrice, and several Green Gages being largely represented. Of Apricots there is also a great number, but

the trees are subjected to the same malady as they are nearly everywhere, repeatedly losing fine limbs. A feature on some of the walls are the cordon Currants, of which the Cherry Red Currant is a favourite and holds a leading position for dessert, producing its large brightly coloured berries in long handsome bunches; a large quarter is also occupied with bush trees, White Dutch, Red Dutch, and Warner's Grape Currants bearing heavy crops of fruit. A total of about a ton of Currants is produced annually for preserving. Raspberries are an important crop, and there are some large rows in the kitchen garden of Fastolf, Northumberland Fillbasket, and Carter's Prolific, with the White Raspberry. Black Currants and Gooseberries are not cultivated on a large scale, as it has been found the space could be more profitably occupied with other crops.

VEGETABLES.

The kitchen garden is divided into several large quarters by the walls, and it is very closely cropped throughout with excellent vegetables. The soil is a heavy loam of good heart, not readily exhausted, but difficult to work, and as the quarters are in most cases 100 yards or more in length, much time is saved by ploughing the land; in fact, it is land that cannot be satisfactorily worked in any other way. All the more important vegetables are grown on the same extensive scale as the fruits; for instance, 10,000 Seakale roots are forced every season; the demand for Asparagus is very large, four beds each 100 yards long being similarly employed for forcing annually, and to maintain this quantity a corresponding number of beds are made up each season. The system adopted for obtaining intermediate supplies is one that has been strongly recommended, and is found satisfactory at Frogmore. A series of parallel beds close together with bricked sides, but with numerous open spaces to admit the heat from the hot-water pipes which run between the beds, are filled with Asparagus; upon a framework above shutters are placed to exclude light and retain the heat, which can be regulated according to the weather and the progress of the crop. With some of the beds for the main outdoor supply of Asparagus it was found that the roots at the edges of the beds suffered by the soil becoming excessively dry in hot weather, and the evil has been completely remedied by a thick mulching of straw applied in the alleys and to the sides of the beds. The earliest Peas are grown in frames, Little Gem being valued for its dwarf sturdy habit, abundant crops, and good quality; from this large supplies have been already drawn, while now the first of the outdoor crops, Daniel O'Rourke and Dickson's First and Best are affording abundance of fine well-filled pods. There are numerous rows of Sangster's No. 1, and for succession Early Emperor, Dickson's Favourite, Veitch's Perfection, and Champion of England are the favourites, but several other varieties are also grown. Potatoes, Lettuces (and all salading), Cabbages, Onions, and Spinach may be taken as examples of vegetables required in great quantities. Of spring Cabbages, for instance, ten to twelve dozen are now being cut daily. Cauliflowers, neat white heads about the size of a teacup, chiefly of Early London, being in great demand, and the huge specimens occasionally seen are not tolerated here. Numerous frames are devoted to the early Potatoes, Veitch's and Myatt's Ashleaf, but there are also extensive outdoor quarters. Onions are not satisfactory in some gardens this season, but Mr. Jones has a grand piece of Tripoli in the best possible condition. The clean vigorous condition of the crops and the close succession maintained afford an example of the best system of market gardening applied to a private garden such as is rarely seen.

PLANTS.

Plants for decorative purposes are grown by thousands. Bulbs and other plants forced for their flowers have much space devoted to them early in the year, Lilies of the Valley and Roman Hyacinths being in especial demand. Palms, Crotons, Ferns, and miscellaneous graceful plants of a similar character for table decoration are required in thousands, necessitating a succession of young plants to take the place of those becoming too large for the purpose or which are damaged during the time they are in use. For the accommodation of these plants there are several convenient pits, and the stock of healthy little specimens is an unusually large one this season. Gardenias are always valued for their flowers, and at Frogmore the principal supply is obtained from young plants placed out in borders at the back of a stove. The house is in two divisions. The borders are narrow and raised some 4 feet above the path with a hot chamber beneath. They are filled with good turfy loam and a single row of plants placed in them. Fresh plants are raised every year, as after two seasons forcing and hard cutting, or three if the plants are exceptionally strong, they are discarded and young planted, and as the two divisions are treated alternately in this way an unfailing succession of freely flowering plants is insured. In the same house Stephanotis is trained along the roof on wires, but the stems are not allowed to twist round these, as when required for wreaths it is

much more convenient to be able to cut a shoot a yard or two in length than cutting the flowers in trusses separately. Caladiums are numerous, the variety Marga having neat medium-sized leaves greenish yellow with dark blotches between the veins, and the silvery white variegated argyrites being chief favourites, but many others are also included. Coleuses are well grown, and one of the most effective varieties is Princess Royal, of good habit and excellent colour, the leaves rich crimson margined with gold. Tall plants of Begonia metallica 4 or 5 feet high are useful for decorative purposes, the distinct bronzy foliage having an uncommon appearance. Pelargoniums, Azaleas, Rhododendrons, Gloxinias, Kalosanthes, Poinsettias, Carnations (Souvenir de la Malmaison is very handsome), Tuberoses, Fuchsias, and Cytisus are all grown in large numbers. Roses have a house devoted to them, chiefly Tea varieties, and such varieties as Homère, Safrano, Céline Forestier, and a blush-tinted delicate and pretty Tea Rose named Pauline Labonté are grown in some other houses trained to the roof, and produce their flowers in abundance early in the season.

The Orchids include a number of very handsome specimen *Cypripedium insigne*, *Coelogyne cristata*, and *Calanthes Veitchi* and *vestita*. Of *Calanthe veratrifolia* there is an unusually fine specimen, bearing about thirty spikes of pure white flowers. *Cypripedium caudatum*, *C. barbatum*, with some *Oncidiums*, are the chief plants in the collection, and these are grown with other stove plants.

The principal ornamental house is a conservatory 200 feet long with a lofty span-roof, supported on iron pillars, with central beds and side stages. The beds are filled with Camellias, strong handsome bushes in splendid condition, and which afford a harvest of valuable blooms of many varieties. There are also numerous fine specimen and half-specimen Palms, the roof being covered with *Tacsonias exoniensis* and *Van Volxemi* with other climbers, and the side stages at the present time are filled with Pelargoniums, Marguerites, *Rhodanthes*, *Petunias*, and exceedingly fine *Hydrangeas*, bearing large globular heads of flowers, varying from pink to bright blue. At the end of the house is a pretty rock fernery and tall plants of the red and white *Daturas sanguinea* and *suaveolens*.

Several columnar specimens of *Cytisus canariensis* 6 or 7 feet high have been very handsome, but are now past their best and are placed outside. A very gay effect is produced in this house in the early spring, when the miscellaneous bulbs are in flower, but at all times when the Court is at Windsor the resources of the plant department are concentrated in this house, which requires much attention and a liberal supply to maintain it in good condition.

Facing the entrance gates of the garden, the pillars of which, with the adjoining walls, are richly covered with the large-leaved form of *Ampelopsis Veitchi* that in the autumn produces a grand effect, is an avenue of old Cherry and Apple trees, and it is proposed to plant this with Evergreen Oaks, in memory of the Jubilee year. It is expected that Her Majesty, with the members of the Royal Family, will assist in this interesting ceremony.

WINDSOR, BUCKINGHAM PALACE, OSBORNE AND BALMORAL.

To the other Royal gardens we can only refer briefly, and though they are all beautiful, they afford less of general interest to horticulturists than Frogmore, as they are employed as pleasure gardens. The Terrace Gardens at Windsor Castle (fig. 83, page 503), which are also under the superintendence of Mr. T. Jones, are tastefully laid out, well planted, and excellently kept, the appearance having been greatly improved in recent years by the handsome Golden Yews and Arbor-Vitæ, with *Retinosporas* and other ornamental Conifers, which are now forming elegant specimens. Miscellaneous plants of the ordinary character are employed in the beds and vases, but at one side, on a slope, are some beds of Heaths, *Ericas vagans* and *carnea*, in opposite pairs, which are very beautiful when in flower. The terrace walls are clothed with Roses (the yellow Banksian is now flowering freely), Clematises, &c., the pure white *Clematis montana* forming a graceful wreath of flowers over one porch. A delightful and most extensive prospect is obtained from the terrace across a charmingly diversified country, while upon the Castle slopes a dense growth of trees and shrubs has a fine effect, the fragrance of the numerous *Philadelphus* coming up in most agreeable gusts when they are stirred by a slight breeze. The Mountain Ash is also abundant on these slopes, and when their brightly coloured fruits are ripe they are worth a long journey to see. Numbers of other deciduous and evergreen trees clothe the slopes, amongst which is a fine specimen of *Paulownia imperialis*, now flowering, but like many other trees it has suffered during the severe weather and heavy snowstorms of the past winter.

Buckingham Palace Gardens comprise about fifty acres, nearly half of which is occupied with lawns. The general design is picturesque, and unusually beautiful for a town garden, such as this really is, for the Prince Consort devoted much time to their im-

provement, and they were chiefly laid out under his direction. The lawns slope down to an ornamental lake embowered in trees and shrubs, and a peep across this is afforded in the illustration (fig. 84, p. 507). There are numerous winding shaded walks, and so plentifully have large trees been employed, that they have effectually screened the garden from all appearances of town life. A diversity of old-fashioned hardy plants occupy the beds, with Chrysanthemums for late autumn display, and the garden altogether furnishes a charming rural-like retreat, admirably adapted for garden parties such as the great gathering of illustrious visitors at the end of the present month.

Osborne, one of the Queen's favourite residences, owes much of its fame to its charming situation at East Cowes overlooking the Solent, and to the number of memorial trees its garden contains; for, like other districts in the Isle of Wight, many Conifers, trees, shrubs, and plants that are delicate or unsafe farther north succeed there admirably. Handsome Catalpas, Paulownias, Eucalyptus globulus, Arbutus, Griselinia littoralis, Eriobotrya japonica, Escallonias, and Buddlea globosa are conspicuous; the Conifers comprising Retinosporas, Thuias, the Umbrella Pine, Sciadopitys verticillata, Arthrotaxus selaginoides, Picea Engelmanni, Libocedrus chilensis, and Abies bracteata, with innumerable others of similar interest. Amongst the memorial trees deserving special attention are a Myrtle and a Cedar of Lebanon, the former raised from a sprig in the bouquet of the Princess Royal, now Crown Princess of Germany, and the other brought by the Prince of Wales as a seedling from Mount Lebanon. Hollies thrive well, and there are several fine examples of green and variegated forms. A magnificent avenue of Austrian Pines and Cornish Elms leads up to the mansion, which is in the Italian style, and overlooks a terrace occupied with ordinary bedding plants, Camellias, and Vines trained over arches; also commanding beautiful glimpses between the trees of the Solent and the Hampshire coast. The garden is carefully kept, and is now under the charge of Mr. Todman, Mr. McPherson having, after a long service, retired on a pension.

Balmoral Castle (fig. 86, p. 516) Her Majesty's northern retreat, is situated amidst some of the grandest of Scottish scenery about fifty miles west of Aberdeen. The river Dee there partly encircles the base of the Craig-an Gowan range, and on the south bank stands the Castle, which is architecturally a noble building in a modification of the old Baronial style with a tower rising to the height of 100 feet. A magnificent view is obtained from there of the neighbouring mountains, several of which exceed 4000 feet in height, densely wooded with Scotch Firs and Larch, of which some millions have been planted on contiguous estates. There is no kitchen garden and only two or three small houses devoted to plants, but the Flower Gardens and Rose Gardens are the chief features, and receive the best attention from the gardener, Mr. W. Paterson. Pelargoniums, Calceolarias, and other ordinary bedding plants are employed in the Scroll flower garden to the east of the Castle, the terraces on the opposite side containing large beds of Common Juniper and Rhododendron hirsutum, with bronze figures of deer and wild boars amongst the shrubs. The Rose Garden contains a good selection of varieties which succeed well though so far north, the plants being healthy and floriferous. Another interesting feature is a long border of herbaceous plants that present a series of attractions during the greater portion of the year.

In all these gardens there is one prevailing character, a graceful picturesque simplicity of design, and a freedom from ostentation, which indicates the most cultured taste. Many might derive a lesson from this that would improve some of the most celebrated British gardens.—L. CASTLE.

APHELEXIS CULTURE.

THIS beautiful and justly much-admired genus has for many years formed one of the greatest ornaments in the splendid collections of plants that have annually graced the tents of our great metropolitan exhibitions; a few practical hints, therefore, respecting its cultivation, which I have conducted successfully for many years, may not be uninteresting. I will commence with its propagation, which is considered by many rather a difficult task, but, having raised some hundreds of them by the following process, I venture to assert that by strictly pursuing my plan no one will be disappointed in the attempt. I would choose the month of June for the purpose. In selecting cuttings make choice of good strong ripe wood, 3 or 4 inches long, if such can be obtained; and if there are three or four side shoots to the cuttings all the better, as in that way neat dwarf bushy plants will be formed at once. In taking off cuttings, instead of removing them with a knife, break them out down to the joint, with a shoulder or heel to them, and just pruning off the loose bark with a knife, is all that is required. Prepare some 5-inch pots by well

draining them, and nearly filling them with light peat and sharp sand in equal proportions; on this place half an inch of clean sharp sand, press all down close, and place your cuttings round the edge of the pot, pressing them in tightly. When finished select a shady place out of doors under a north wall for them. Take out a trench about 9 inches deep; place in the bottom of it 3 inches of coal ashes for the purpose of keeping down worms, and on this plunge the pots to their rims, filling up between them with ashes. When this is done put a sound handglass over them, pressing it down firmly on the ashes to prevent air entering. They may then be left three or four days, when they may receive a slight sprinkling of water. Put the glass carefully on them again, when there will be but little to attend to until they are rooted, except looking to them occasionally, in order to see that they do not get dry or that damp does not accumulate.

In August they will be ready for potting, which should be done as soon as they are rooted, in order to get well established bushy plants before winter. When potting use the same compost as is recommended for the bottom of the cutting plants, and pot them into 3-inch pots. Set them in a close cold frame, and shade them from the hot sun. In a fortnight they will be sufficiently established to permit of the operation of topping being performed, which should be done to every shoot; this will insure your getting them short and bushy, and a proper foundation will be laid for a fine specimen.

When the season arrives for placing them in their winter quarters, make choice of a dry airy shelf in the greenhouse for them, as close to the glass as can be obtained, where they may remain until the following April; they will then require shifting into larger pots, using the compost rather coarser and with less sand in it than before, and mixing some small pieces of charcoal or broken potsherds with it, which prevent the soil becoming soddened and unhealthy. Keep them either in a cold pit or frame, and see that they are constantly topped, which will be found to give them more strength and vigour. They will require another fresh potting about the middle of June, which should be their final one for that season. When properly established, after this time of shifting, begin to expose them to more sun and air, until they may eventually be placed out in the open ground, making choice of a partially shaded situation for them, free from all drip of trees, and where they may remain until housing time arrives, when they should be replaced in the greenhouse as before recommended, paying great attention not to give them an over-supply of water during the winter. As spring advances attend to potting them as they may require it; and should the plants not be wanted to bloom in a small state, they may again be regularly topped as before directed. By following the practice I have just described, and attending to shifting them as they increase in growth, in two years you will be in possession of some good bushy plants. Should this, however, be too long to wait, young plants may always be purchased at the principal nurseries, taking care to choose dwarf bushy ones in preference to those having long weak wood, and by following up the principle of potting and topping, you will insure a specimen in much less time than you could from cuttings.

My object in giving the full particulars of the most successful mode of propagating them is to show that there is not that difficulty in the operation that many suppose. It may here be observed that as the plant advances in growth the soil should be used in a coarser or rougher state, always employing sharp sand rather liberally with it, and increasing the size of the pieces of charcoal or potsherd, mixed with the compost, and when they receive their final shift, say into 15-inch pots, pieces as large as hens' eggs may be introduced, pressing them firmly into the soil. This will be found of the greatest possible advantage. It will promote in many ways the well-doing of the plant, as, for instance, in keeping the soil open and porous, kind and healthy, and in giving the roots full scope for extending themselves through the ball of earth, without coming in contact with soil that has become by constant watering soddened and unhealthy.—W. B. C.

A CALAMITY WITH GRAPES.

I SHOULD feel extremely obliged to you if you could help me to solve the cause of the Madresfield Court Grapes decaying, as indicated by the enclosed sample. The Vine is planted in a good ordinary lean-to vinery, ten years ago. I started the house early in February. The Vine showed great promise, and on the 4th of June was carrying nine splendid bunches. As there was great interest evinced by all who saw the Vine, I wished to give it every advantage. Finding a very slight trace of thrips in the house, I determined to give a light fumigating as a preventive. On the 6th to my great dismay I observed a few of the berries turning a dirty colour. I cut them out thinking they were "scalded." The berries have gone worse daily since, and to-day, the 14th inst., to my great regret I cut all the bunches. I also enclose a leaf. Now, if the fumigating has done the damage, the foliage is still perfect, and also good crops of Black Hamburgh, Mill Hill Hamburgh, and Foster's

Seedling are quite safe. The Madresfield Court is planted in the centre of the house, borders inside and out. I think if the fumigating is the cause it may have been because the Vine was more vigorous than the others, and a thin-skinned variety. I should be very glad of your opinion in the next issue.—A HAMPSHIRE GARDENER.

[We print this letter in order that those of our readers who have fumigated vineries containing the Madresfield Court Grape may record their experience on the subject. The Grapes referred to are very fine indeed, the few that are not injured being quite green and upwards of $1\frac{1}{4}$ inch long and an inch in diameter; the others, and they are the majority, a dirty brown colour, more or less shrivelled, and undergoing the process of decay. The footstalks are healthy. The leaf sent was very stout and indicated good health and good cultivation, but the crop is ruined. What was the cause of this? Can it have been the fumigation? We have never known such injury to result from the process, even when the fumigating has not been light; but we have not had occasion to try its effects on the variety in question.]

The Grapes appear as if scalded, or rather chilled. It is quite certain that there has been an escape of moisture from them, for only the few green berries are plump and distended, the others having shrunk so much that the skins are loose and wrinkled. Extreme evaporation is accompanied by a sudden lowering of temperature of the substance from which the moisture escapes; this lowering of temperature results in contraction, and this may be sufficient to injure the tissue and give the appearance of scalding; but it is really chilling. The opinion that the temperature of closed vineries heats the moisture that is in contact with the Grapes to a degree that actually causes scalding is, we believe, what Mr. Iggulden would call a "fad," and a very old established one. We have applied water to Grapes very much hotter than the moisture of the house, and in contact with the berries, could possibly be, yet no "scalding" followed the experiment; but a sudden outrush of air through throwing the too long closed ventilators too widely open has dragged the moisture, and with it the heat, from the berries to such an extent that they have been chilled—not scalded.

The very fine examples of Madresfield Court that we are sorry to see before us have exactly the appearance of Grapes that have been subjected to the ordeal indicated, but we are not prepared to assume that such a good cultivator as our correspondent evidently is has made such a mistake; yet we think he would not have erred if, when the first signs of discoloration were apparent, he had afforded some shade to the Vine. We shall be glad if some of our Grape-growing friends can account for the cause of the injury that has resulted in the loss of a crop of Grapes that must, if they had continued swelling, have been very fine indeed.]



WE are desired to remind our readers that a special general meeting of the Fellows of the ROYAL HORTICULTURAL SOCIETY will be held at 3 P.M., on Tuesday, June 23th, in the Conservatory, to consider the results of the negotiations and inquiries which have been made by the Council as to the future maintenance and housing of the Society.

— LEEDS HORTICULTURAL SOCIETY.—A four-days exhibition, under the auspices of the above Society opened on Tuesday, the chief exhibitors in the plant classes being Mr. Letts of Upleatham, and Mr. Edmonds of Bestwood Lodge. In order to connect it more intimately with the great object of the national festivities, Her Majesty consented to receive a basket of Roses from the Society. This was delivered by special-messenger on Monday, and its grateful acceptance acknowledged by telegram. Photographs of the arrangement, also a *fac simile* basket, were a centre of attraction in the Show. The blooms consisted appropriately of fifty red and fifty white Roses, bordered with Brussels lace, and the ribbon was embossed with the crown and Royal arms. The flowers were arranged with great taste by Mr. R. Featherstone.

— ROYAL HORTICULTURAL SOCIETY'S GARDENS, CHISWICK.—A Strawberry Fête, with band and promenade, will be held early in July, date of which will be duly announced. Admission.—As on ordinary days to Fellows and their orders, season ticket holders, and subscribers to the Chiswick Horticultural Society, or bearers of their tickets.

— IT is with much regret that we learn of the death of MADAME VAN GEERT, wife of Mr. Charles Prosper Van Geert of Antwerp, and one of the oldest and most-esteemed of Belgian nurserymen. Madame Van Geert had been a sufferer for some years from a paralytic seizure

that refused to yield to the best medical treatment. Visitors, of whatever nationality, to Mr. Van Geert's horticultural establishment cannot fail to have been impressed with the unvarying amiability of the deceased lady, and her constant solicitude for the comfort of all by whom she was surrounded; and we join in the wide expression of sympathy that will be tendered to the family on the great loss they have sustained. Madame Van Geert was in the 70th year of her age.

— FRUIT AT THE EARLY SUMMER SHOWS.—The collection of fruit with which Mr. Parker, gardener to J. Corbett, Esq., M.P., Impney, Droitwich, won the chief prize at the Royal Botanic Society's Show last week, was a most creditable one both for variety and even quality in such a season as the present. His Black Hamburg and Foster's Seedling Grapes were his strong points, but the Peaches and Nectarines were also fine. Mr. Hollingsworth, gardener to J. Campbell, Esq., Woodseat, Uttoxeter, had three very handsome bunches of Black Hamburg Grapes in the class for black Grapes, and very rarely do we see such excellent samples at the June shows. They were of medium size, compact, with fine berries, and admirably coloured. Mr. P. Feist, gardener to R. J. Ashton, Esq., Bishopsgate House, Staines, who makes a specialty of Muscat of Alexandria, had his favourite in capital form on the same occasion, though it would have been improved considerably by a few more days on the Vines. As an exhibit worthy of special notice we must not omit the beautiful samples of Sir Charles Napier Strawberries from Mr. Norman, Hatfield Gardens, at Kensington, on the previous day. In size, form, and colour they were all that could be wished—quite models in fact. At York Mr. McIndoe was the most successful exhibitor, where also a general good quality was noticeable.

— AT the ROYAL BOTANIC SOCIETY'S EVENING FETE, Regent's Park, Thursday, July 7th, 1887, there will be an exhibition of floral decorations, &c., prizes of £5 to 10s. being offered. All classes open to all competitors. All plants and cut flowers must be natural; no artificial flowers admitted. The following are the principal classes:—Floral decorations arranged for a dinner table 10 by 5; ditto, ditto dressed ready for use; ditto, three groups for ditto, only one kind of flower in each group; foliage and flowers, suitable for a sideboard; small group of growing plants, suitable for table; group of plants, arranged for the decoration of a recess, alcove, or fire-place in a room; standing basket, furnished with plants suitable for growing in a living-room; hanging basket, with growing plants; bridal bouquet; ball-room bouquet; group of flowers, &c., stalks in water, and neither tied nor wired; flowers (either cut or on the plant) which only expand at night. Medals are also offered for the following:—Arrangements of flowers, leaves, &c., for personal adornment, such as wreaths, chaplets, and the like, and also for use in dress trimming and ornament. These may be prepared ready for attachment to the dress, or the dress may be exhibited as ornamented. Lamps or illuminants for ornamental outdoor or conservatory use. Self-contained garden and conservatory fountains. Works of art.—The Glass Corridor and Museum will be reserved for the exhibition of paintings and carvings of trees, plants, flowers as pictures, or on glass, china, wood, or other material. Exhibitors desiring space for such exhibits should make early application for space, which is limited.

— MR. W. J. MURPHY writes:—I cannot allow you to close the very important DISCUSSION ON POTATOES AND POTATO DEGENERATION initiated by me some months since in your pages without notifying that already some good seems likely to arise from it. I have found in Sutton's No. 36, planted 17th February last, and Laxton's No. 1 planted later, two of the latest growing Potatoes in cultivation. The former, though quite sound and vigorous, did not come above the ground until about 20th May, three months after planting, so I have come to the conclusion that here is a fine opportunity for the hybridist. A cross of either of those with the Champion, the first to move, or with such vigorous growers as Carter's Freedom or Carter's King of the Potato (new) should give valuable results."

— "E. M." writes—"Seldom indeed do we see MANDEVILLA SUAVEOLENS so well grown as it deserves, probably owing to the difficulty in keeping the foliage free from red spider, to which this plant is much subjected. It does not require much roof space, and being deciduous, does not obstruct the light from plants growing underneath it during the winter months. It may be planted at the foot of a back wall, and trained up with one or two stems until it reaches the roof, when more branches can be allowed to grow at will. Plants may

be easily raised from seed sown in a mild bottom heat in the spring. The soil best suited is composed of good fibry loam, peat, and leaf soil, with a dash of ground bones. Water freely at the roots during the summer months, when growth is active, as dryness at the roots encourages the spread of red spider. The foliage, too, must be vigorously syringed every day during the spring and summer, to ward off the attacks of this plant's most inveterate enemy—red spider—otherwise the growth will be poor, and consequently few flowers, these being borne on the current year's growth, renders a free growth necessary to secure a good harvest of blossoms."

— **GARDEN PHLOXES.**—Mr. W. A. Manda of the Cambridge Botanic Garden (U.S.A.) said at a recent meeting of the Massachusetts Horticultural Society that of the hardy herbaceous and perennial plants the Phlox is one of the best, the different species of this showy genus affording flowers at all seasons. Phlox subulata forms a dense mass of rose-coloured flowers, with pink eyes, in the earliest spring. Many garden varieties have been produced from this species, such as Nelsoni, atropurpurea, nivalis, The Bride, and others from the darkest purple to snow-white. P. amœna is another vernal bloomer; it grows about 8 inches high and produces in May a profusion of purple flowers. Not less valuable is P. ovata, which sends up large heads of beautiful flowers on stems from 1 to 2 feet high in June. P. divaricata has pretty bluish or lilac flowers on stems a foot high and blooms in May. P. glaberrima is a very neat and compact-growing species, a foot high, with long shiny foliage and dense heads of pinkish flowers in June and July. P. reptans is a dwarf and neat species, never growing over 6 inches high, and bears large flowers in May. But P. paniculata is best known and most cultivated; it grows from 2 to 6 feet high. The type usually has purple—seldom white—flowers in large and dense pyramidal spikes. Innumerable garden varieties have been produced from this species, of all colours from red to white. They flower from July to October.

— **GARDENING APPOINTMENT.**—We are glad to learn that Mr. C. Herrin, who was for some years gardener at Gerrard's Cross, has been appointed gardener to the Hon. G. M. Fortescue, Dropmore, Maidenhead, succeeding the late Mr. Frost. Mr. Herrin is well known as a careful and intelligent gardener, and has been very successful as a grower and exhibitor of Chrysanthemums. Mr. Jacques, recently gardener at Davenham Bank, Malvern, has been appointed to succeed Mr. Bradshaw as gardener to Baron Ferdinand Rothschild, Waddesdon Manor, Aylesbury.

— **BLUE FLOWERS.**—It is often remarked with regret that we have too few blue-flowered plants available for culture in houses, and yet it seems that those which are procurable are disregarded. What could be more brilliant than the *Leschenaultia biloba major*, of which such well-grown plants have been shown in London during the past week or two? The plant, with ordinary care, is easily grown, and flowers most profusely, while the shade of blue is at once rich and distinct.

— "H. H. M." writes—"Very charming now are the ICELAND OR ARCTIC POPPIES, as the varieties of *Papaver nudicaule* are popularly termed. Their flowers possess a peculiar grace, and the colours are so pure, that it is not surprising they have steadily advanced in popular favour. Pure white, clear yellow, and rich orange, are the shades represented, and the flowers possess more substance of petal than our native scarlet *Papaver Rhœas*, which may be regarded as its near relative, botanically. The flowers are beautifully cupped, slightly nodding on the slender stalk, and very freely produced. The plant succeeds in any cool, not too dry, position, but is best raised from seed annually."

— **THE Times** of June 18th reports the evidence of Mr. Martin J. Sutton, the managing partner of the firm of Sutton & Sons, Reading, before the Select Committee of the House of Commons on SUNDAY POSTAL LABOUR. He stated that for four months of the year they received from 1200 to 1500, and despatched about 2000 letters a day, and during the rest of the year from 500 to 800 a day. They sent out 150,000 catalogues every year, and often as many as 200,000 circulars besides, and their arrangements were made for the despatch of a ton weight of parcels by Parcels Post every day. Their expenditure during the last six months in stamps was £3411, and during the same time they had used and posted in letters as remittances £1948 worth of small

postal orders and £520 worth of stamps without a single order or stamp having been lost in the post. They had never received or despatched letters on Sundays. His firm had posted as little as possible on Saturdays, with the object of avoiding labour in the Post Office on Sundays. That was a serious inconvenience to them in this respect—that it restricted them to about four days a week for posting their catalogues, because the Post Office required notice, for as they were posted in batches of 20 tons to 30 tons at a time, they could not be accepted by the Post Office without previous arrangement. If there were not a Sunday delivery they could post on Friday and Saturday, as on other days, without fear of throwing additional Sunday work on country postmen. But the varying values of seed often made the premature posting of catalogues a great inconvenience, and sometimes a serious loss. Notwithstanding such disadvantages, however, he was glad to have the opportunity of giving evidence to prove that the Sunday delivery of letters was quite unnecessary for the management of a large business.

— **THE WINCHESTER HORTICULTURAL SOCIETY** is now affiliated with the National Rose Society, and will offer £105 in prizes at the show to be held in Winchester, Thursday, July 7th, this year.

— **WE** learn with regret that MR. FRANCIS R. KINGHORN, The Sheen Nurseries, Richmond, Surrey, died on June 11th, in his seventy-fifth year. Mr. Kinghorn had long been a well known horticulturist, and for a considerable time was member of the Floral Committee of the Royal Horticultural Society, frequently also officiating as Judge at metropolitan and provincial shows. He was born on February 13th, 1813, at Lennox Love, Haddington, N.B., and after service in several establishments in the north was appointed, at the age of twenty-four, gardener to Alexander Murray, Esq., Orleans House, Twickenham, where he subsequently also served the Earl of Kilmorey. He raised several good Indian Azaleas, but his chief fame was made by Flower of Spring Pelargonium, which was sent out by Messrs. Henderson, and became a great favourite for bedding. Since 1855 he has been in business at the Sheen Nurseries, that will now be carried on by his son.

— **CEYLON AGRI-HORTICULTURAL EXHIBITION.**—Messrs. James Carter & Co., 237 and 238, High Holborn, write—"By advices just received from Ceylon we learn that at the great Agri-Horticultural Exhibition held in the City of Kandy during May last, three of our customers were awarded the following extraordinary array of medals for plants, &c., grown from our seed. The gold medal—For the best collections of plants and flowers, all grown from Carter's seeds, &c. Silver medals—For Carter's Victoria Prize Calceolaria, Holborn Prize Primula, Crown Jewels Begonia, Marble Prize Gloxinia, Fuchsias, Geraniums, and Mont Blanc Cauliflower. Bronze medals—For First Prize Cyclamen and Prize Achimenes."

— **GLADIOLUS COLVILLI.**—"A Cultivator" remarks that *G. Colvilli alba* and *The Bride* are excellent when grown in pots and flowered during the end of May or early in June for house decoration or for grouping in the greenhouse with a base of Maidenhair Fern. They are alike useful for cutting; the snowy whiteness of their flowers harmonises well with others in bouquets. To have them in flower at the times named, procure the corms in October, placing five or six in a 48-sized pot in a fairly rich soil, to which has been added plenty of decayed leaves. Cover the bulbs an inch deep with the soil, plunging the pots then in cocoa fibre refuse, ashes, or sawdust, giving if possible the protection of a cold frame. When roots are freely made, and the growths are starting, remove the plants to an ordinary greenhouse from which frost is simply excluded, when they can remain until they bloom, or if required earlier in batches, place some in a gentle heat when growth is fairly on the way. Stimulate the plants with liquid manure occasionally when in active growth."

— **WE** learn from a local paper that at the SALE OF PLANTS AT FAIR LAWN, LYTHAM (exclusive of the Orchids) the specimens realised very low prices. Excepting a few Pelargoniums, small Ferns, &c., the only plant that brought anything like its value was a fine *Lapageria alba* bought by Dr. Slater for 7½ guineas. The magnificent greenhouse Rhododendrons, a class of plants the late Mr. Fildes was particularly fond of, and of which he had a fine collection, fetched scarcely a quarter of their value. One magnificent specimen Countess of Sefton was knocked down to the Rev. Canon Taylor for the mere nominal sum of 2 guineas. A fine Rhododendron *Veitchianum* went to the Rev. Canon

Taylor for 2 guineas. Fine specimen Azaleas, Camellias, Allamandas, Stephanotis, Bougainvilleas, Ferns, &c., brought equally low figures. Every credit is due to the energetic gardener, Mr. Thornber, for the excellent culture the plants have received.

— A WRITER in "Vick's Illustrated Magazine" has the following on THE TUBEROUS-ROOTED CHERVIL (*Chaerophyllum bulbosum*).—"This is a vegetable of comparatively recent introduction. Its roots closely resemble a Parsnip in shape, and is of a grey colour, the white and mealy flesh tasting something like a Sweet Potato. I do not think that it will ever be cultivated for market purposes to any great extent, yet for amateurs I think it is a very desirable addition to the limited list of garden vegetables. It is equally as hardy as the Parsnip, and, like it, much improved by frost. It can be cultivated as the Carrot and Parsnip; and, like them, should be grown in a deep, well enriched, light loamy soil. The seed should be sown thinly in rows 16 inches apart and covered slightly, and if the ground is at all dry at the time of sowing it should be well firmed around the seeds. It is advisable to sow early in the spring; in fact, as soon as the ground can be properly prepared, as it is very slow to germinate, especially if the weather becomes hot or dry. After the plants are up and strong enough to handle they should be thinned, so that they stand about 4 inches apart, and after this the only care they will require will be to keep them free from weeds until cold weather sets in, when they can be taken up and stored for winter use. This is best done by placing them in a shallow pit and covering with earth to the depth of 18 inches, the roots being piled in a conical form, and in this manner covered so as to throw off water."

ON TULIPS.

[By MR. POLMAN MOOY, of Haarlem (Holland). Read at a meeting of the Horticultural Club, June 14th, 1887.]

THE Tulip derives its name from the Persian word, "Thoulyhan," turhan, the eastern head dress much worn in Turkey, Persia, and other eastern countries. In Turkey the Tulip is named "Tubilent," also because of its resemblance in shape to the head dress there in use.

According to an ancient writer on this subject, Dioscorides, the name of the Tulip must have been *Satyrion triphyllum*, and also has gone by the name of *Narciss* of Pliny. In Turkey the early sorts go by the name of Caffa Lalé, and the late-blooming sorts are named Cavala Lalé, after the names of the localities where they mostly grow.

The Tulip is a bulbous plant, throwing up a single stem of from 4 to 36 inches, forming its single flower at the very top, consisting of six petals forming a cup-shaped flower, with its functions for fructification by seed in the centre of this cup; they are divided into various classes according to their time of blooming and the different characters and nature of colouring of each individual class when in bloom. From a book published in the Dutch language, printed in Antwerp in the year 1644, by Rembertus Dodonæus, a botanist at that time, it is mentioned that the Tulip in former ages was known by the name of *Pythion*, and at that time the wild Tulip was eaten and was used for thickening the milk. Theophrastus, another author of past ages, declares the Tulip to be a very good food, while two other authors, Hespæchius, together with Gesner, in their botanical works, mention that the old name has been *Satyrion Erythronium*, producing only a red flower, which was considered at that time a very good eatable bulb.

The learned gentleman, Gesner, called the Linnæus of the sixteenth century, met with the first Tulip at Augsburg (Germany), in a garden of which the Councillor Johan Heinrich Herwart was the proprietor.

It further appears that the first Tulips were imported into Holland in the year 1522 by Augerius Gisleinius of Busbecq, born at Communes, in French Flandres, and died at St. Germain, near Rouen, on October 28th, 1592, which gentleman had been sent out by the Emperor Frederick the First to Soliman the Second to Constantinople. This gentleman having travelled through a good portion of Asia, brought the Tulip in Holland, having collected it in Persia.

The first Tulip was seen in bloom in Amsterdam at an apothecary's there of Walich Kienwertz, where it was greatly admired by the public, but Carolus Clusius, a botanist at Utrecht, was the first who occupied himself with growing and distributing Tulips. This gentleman distributed Tulips all over Holland, and created a taste for them among the public, which led at the time to the neglect of all other flowers. Already at that time Tulips were sold at pretty high prices, although not equal to the prices in the speculative days later on. At the above-named date Tulips were known only in two wild-growing sorts, distinguished by the names of Large and Small sort, the latter being only in one colour—viz., yellow, and this sort is probably the original sort from which our many early Tulip varieties have sprung.

As regards the edible property of our present Tulip bulbs I cannot say anything either in their favour or otherwise, as I have never tried them myself, and I have only heard of one grower in our neighbourhood who has tried them at the time that the Duc Van Thol varieties were so abundant that they could not be sold, who declared that he could not eat them; but perhaps he did not have the proper receipt for their preparation and cooking. Very possibly these bulbs may possess valuable culinary properties, and if prepared carefully under the able supervision of some lady domestic botanist, may lead perhaps to a splendid addition to our cookery, and produce a delicious dish hitherto unknown. I can very well understand that in the past years when Tulips were only grown in limited quantities, simply to satisfy the floricultural fancy of the flowers, there must have been little inducement to prepare Tulips for the table at the cost of hundreds, even if

their delicacy should have been ever so great; but at the present day, when they are grown by millions and can be procured at a small price, a Tulip dish might not prove such a very costly or difficult delicacy to bring on the table, in case such may be found desirable.

I should almost presume that some of the fair lady members of our Club may feel interested to arrange experiments in this way, when the members should certainly feel extremely thankful and happy when they were allowed a taste of so novel a dish.

The classes in which the Tulips are divided are named as follows:—

- a. The single early Tulips,
- b. " Double early and double late Tulips,
- c. " Garden or single late Tulips (fancy Tulips), Tulips d'Amateurs.
- d. " Parrot Tulips.
- e. " Botanical Tulips.

The early Tulips are again divided according to their time of flowering, of which the single early Duc Van Thol Tulips (*Tulipa suaveolens*) in various colours are the very earliest, and are therefore most esteemed for early forcing in pots or vases for indoor decorations, when with proper treatment these can be had in bloom by Christmas or even earlier. They can be had in the following different colours—viz., brilliant scarlet, red with golden yellow border, vermilion, crimson, red laced with gold, pure white, yellow, rose, purple, rose spotted, orange, and violet. When the above-named Duc Van Thol Tulips are planted in pots or vases, they prove a very beautiful and very early indoor decoration at a season when blooming plants are generally very scarce indeed.

The somewhat later blooming single early Tulips comprise at the present date numerous colours, from pure white up to the most intense scarlet, and they are highly ornamental if planted in beds in the autumn, when early in spring they make a most pleasing and effective show. Their beauty for this purpose has become so highly appreciated, and has become so much in favour of the general public throughout the civilised world, that thousands (even millions) of bulbs are now sent all over the world to satisfy the increasing taste for these garden decorations in early spring. These early Tulips are the more valuable and appreciated because they bloom very early in spring, almost immediately after the severity of the winter has left us, being a time too early for planting out the summer plants, and thus filling up the period between winter and summer planting, which, without them, would have to be left without any floral garden decoration. At the time when the Tulips have finished blooming and can be taken up is just the proper time when summer plants should be inserted.

The Tulips for garden decoration should be planted in October or November, and should be somewhat protected against the severity of winter with some covering material such as straw, reeds, or leaves, which, however, should be removed immediately when milder weather sets in, as otherwise the Tulips get drawn up, and are consequently weakened.

The early Tulips which are most suitable for the purpose of bedding out and bloom pretty well at the same time are the following:—

Vermilion Brilliant	} Scarlet, crimson, and vermilion.
Rembrandt	
Belle Alliance	
Artus	
Brutus	
Crimson King	} Pure yellow.
Chrysolora	
Canary Bird	
King of Yellows	
Pottebakkar	
Yellow Prince	} Pure white and rosy white.
Pax Alba	
Pottebakker	
Snowball	
Queen Victoria	
Proserpine	} Soft rosy red of various shades.
Adeline	
Cramoisi pourpre	
Epaminondas	
Wouwerman	
Vander Neer	} Shades of violet.
Paulus Potter	
Molière	
President Lincoln	
Rose Luisante	
Cottage Maid	} Rose and white or pink.
Rose Gris de Lin	
Rosamundi	
Princess Mary Anne	
Keizerskroon	
Duchess of Parma	} Red and yellow bordered.
Leonardo da Vinci	
Belle Alliance rectified,	
Bride of Haarlem,	
Duchess of Austria,	
Globe de Rigaut,	
Golden Standard,	
Silver Standard,	
Tulipa Florentina	} Sweet-scented Tulips.
Bizard Pronkert	
Prince of Austria	
Yellow Prince	

The above-named and many more Tulip sorts are also much used for

forcing in pots. By planting three to four bulbs in a moderate-sized pot they can do very well in a room, when their gradual development during winter is a daily pleasure for an admirer of Nature to notice. These Tulip roots can also be used on water like a Hyacinth, in which style they look very showy among other flowers or plants. Of the class of single early Tulips there are numerous varieties in almost all shades of colours, and although fifty years ago many varieties existed, during the last fifty years the most striking and most beautiful sorts, now so much in esteem, have been raised and brought into use, and are certainly very great improvements upon the older varieties. During the last few years a little collection has been formed of Tulips with variegated foliage, of which some are very conspicuous. It appears that this class is not so much known, but some of them would be useful for decorative purposes. The Yellow Prince, with variegated foliage, is indeed a real beauty, while Purple Crown and Silver Standard, La Precieuse, &c., all with variegated foliage, are also very fine. This class has an important advantage over the others, because they are decorative independent of the flower, and therefore their decorative property lasts longer and begins earlier than all others.

The double early Tulips now in cultivation are not so numerous in variety as the single, but some of them are very beautiful and highly attractive by the large size of their Rose-shaped flowers and also by their fine combination of colours. Some of these double Tulips are most suitable for planting out in beds owing to their short-growing habit and the very sharp and well-distinguished colours.

The following early varieties are dwarf growing, and together grow very uniform, all of the same height, and coming into bloom at the same time. These are:—Rose Blanche, pure white; La Candeur, white; Agnes, brilliant scarlet; Rubra Maxima, deep red; Rex Rubrorum, dark red; Queen Victoria, purplish red; Murillo, rose; Tournesol, red and yellow; Lac Van Haarlem, pure violet, and many more.

When planted in beds all sorts of figures in distinct colours can be made of them after certain designs.

Of the tall-growing "double late" sorts, some are extremely beautiful, among which I may mention the *Mariage de ma Fille*, red, striped with white; *La Belle Alliance*, white, striped with violet; *Yellow Rose*, pure yellow; and so many more which, when planted in front of or between shrubberies, produce a very fine effect.

(To be continued.)



HARDY ORCHIDS.

AN interesting collection of hardy and cool-house Orchid flowers was contributed by the Comte de Paris, Sheen House, Surrey, to the Royal Botanic Society's Show last week, and though they were not very conspicuous they attracted the attention of many orchidists. The plants from which the flowers had been gathered were grown in the gardens and cool houses at Château d'Eu, France, and most of the European species had been collected wild in various districts, and there are several parts of southern Europe where there are far more native representatives of this family than in Britain. It is urged against many of these that they are more curious than beautiful, but some species of Orchis, like *mascula* and *maculata*, will, when flowering freely, compare favourably with many tropical epiphytal Orchids. Then we have the North American Orchids, and with the help of a frame or cool house we can have several Chinese or Japanese forms. *Cypripedium spectabile* is a grand plant for moist positions; *C. macranthum*, especially when it is seen as it was recently shown at South Kensington from Floore Gardens, Weedon, is also very handsome, of a purplish-crimson colour, and for uniformity and richness it is scarcely surpassed even by the choice indoor *Cypripediums*. The Cape of Good Hope yields us the *Disas*, which through a source of difficulty to some cultivators, are not very troublesome when a suitably moist cool situation is provided for them in a house or frame. The *Satyrums* include some very curious and handsome terrestrial Orchids, somewhat fastidious, but worthy of the care necessary to ensure their success. There are thus ample to select from, yet collections are rare, even in large gardens. The Orchids shown by the Comte de Paris were as follows:—*Aceras anthropophora*, *Cypripedium spectabile*, *Serapias Lingua*, *Ophrys tenthredinifera*, *Serapias pseudo-cordigera*, *Ophrys bombylifera*, *Cephalanthera ensifolia*, *Ophrys fusca*, *Orchis longicornu*, *Orchis fusca*, *Orchis tephrosanthes*, *Orchis militaris*, *Ophrys lutea*, *O. Speculum*, *Cypripedium pubescens*, *Bletia hyacinthina*, *Orchis mascula*, and *O. maculata*.—X.

ORCHIDS AT HIGHGATE.

MR. H. EASON, gardener to B. Noakes, Esq., Hope Cottage, Highgate, has long been known as a prizetaker at the Royal Botanic Society's and other exhibitions, but he is perhaps not so well known as a successful Orchid grower. I had the pleasure of being shown over his place a few days ago, and amongst his small, but very select and exceedingly well grown collection of Orchids, I was much struck with his examples of *Cypripedium niveum*, numbering some twenty plants in 48-sized pots, suspended from the roof by wire, about 2 feet or so from the glass, and all in full flower. The pretty variegated foliage looked the picture of health, and quite a number of the plants had four to five blooms each, the charming satiny-white and speckled blossoms looking

very beautiful indeed, and the beau ideal of a chaste "buttonhole." It is, I believe, not unusual to suspend this Burmese Orchid in its cultivation, but Mr. Eason always treats it in this way and his success is beyond doubt. Amongst others in the collection I noticed a dozen plants of *Epidendrum vitellinum majus*, *Cypripedium superbiens*, and *Aerides Veitchii*, all splendidly grown and flowered; also a number of grandly grown plants of *Cœlogyne cristata* (Chatsworth variety) in 14-inch pots full of splendid pseudo-bulbs and in remarkable health.—J. L.

AN ORCHID BOUQUET.

MESSRS. F. SANDER & Co., St. Albans, on Monday last had on view at Mr. Stevens' Rooms, King Street, Covent Garden, a magnificent bouquet of Orchids that had been prepared for H.M. the Queen. It was about 7 feet high and nearly as much in diameter, surmounted by a crown formed of *Dendrobium chrysotoxum*, *D. suavisimum*, and *D. thyrsiflorum* and *Oncidium sphaacelatum*, the greater portion of this huge bouquet being composed of *Cattleyas Mossiae*, *Mendeli*, *Sanderiana*, *Lælia purpurata*, *Odontoglossum crispum*, *O. cordatum*, *Oncidium crispum*, *Phalenopsis grandiflora*, &c., with the letters V.R. in bands of *Epidendrum vitellinum*. It was an extraordinary production, and comprised some thousands of Orchid flowers, the value of which it would be difficult to estimate.



HARDY FRUIT GARDEN.

NEWLY PLANTED TREES.—The unusually hot and dry weather recently experienced has naturally checked all active growth on late-planted trees. Very few of them will form any lateral growth, nor will the leading shoots make much progress; but if properly attended to the root-action will be going on. Unless these comparatively poorly rooted trees are kept well supplied with moisture, which a liberal mulching on strawy manure will help to conserve, very few fresh fibres will be formed, and as a consequence they will break weakly next season. Syringing the foliage in the evenings of sunny days will also benefit them. No newly planted young trees ought to be allowed to bear any fruit. If left on the trees it rarely attains a serviceable size, but the attempt to perfect it materially checks both leaf and root growth. Do not hastily remove any Apple or Pear trees that have failed to start into growth. If the wood remains plump and green it may start into growth at midsummer, or even next spring. Water them at the roots occasionally, syringe over the foliage and mulch. Pyramids and standards in the open ought long ago to have been properly secured to stakes, otherwise wind-swaying effectually checks root-action. Besides, the stems also require to be kept straight.

THINNING THE CROPS.—Pears bloomed very abundantly, and where they set well the young fruit ought at once to be freely thinned out, otherwise the trees will attempt to perfect the lot, the most probable consequence being a general failure to swell any to a good size. Nor is this the only evil result, as, when overcropped one season, it takes one or more seasons to recover them from the check. Therefore thin early and freely, and be the gainers thereby in every way. In the case of all the larger sorts, such as *Pitmaston Duchess*, *Maréchal de Cour*, *Van Mons Leon le Clere*, *General Todtleben*, *Beurré Bachelier*, *Beurré Clairgaut*, *Doyenné Boussoch*, *Duchesse d'Angoulême*, and *Uvedale's St. Germain*, not more than one fruit should be left of each cluster, and where they have set plentifully, even those left ought to be eventually reduced in number. They are nothing if not large. Nor can such fine sorts as *Williams' Bon Chrétien*, *Jargonelle*, *Beurré Superfin*, *Louise Bonne of Jersey*, *Marie Louise*, *Beurré Diel*, *Doyenné du Comice*, *Glou. Morceau*, *Beurré Hardy*, *Brockworth Park*, *Ne Plus Meuris*, *Huyshoe's Prince of Wales* and *Prince Consort*, *Easter Beurré*, *Haeon's* *Incomparable*, and *Gansel's Bergamot*; be well grown too large. Only the best fruit in each cluster of these should be saved. The small, or comparatively small sorts, may frequently be left in clusters of two or three fruit, but even these, if abundant, may well be left hanging singly. In the latter category we include *Alexandre Bivort*, *Crasannes*, *Autumn Bergamot*, *Bergamotte Esperen*, *Beurré d'Arenberg*, *Beurré Giffard*, *Beurré Sterckmans*, *Citron des Carmes*, *Jean de Witte*, *Jewess*, *Josephine de Malines*, *Knight's Monarch*, *Olivier de Serres*, *Seckle*, and *Winter Nelis*. Unless Plums attain their natural size the fruits are of very poor quality. It is advisable to thin out lightly now, and again when nearly fully grown, the latter thinnings being excellent either for tarts or making into preserve. Cherries are much finer if thinned out early, and the same holds good with regard to the dessert Gooseberries. Peaches are set very thickly, and in many instances if more than one in ten of the fruit are left on the trees only small fruit will be ripened off. Thin out at once, not waiting for the trees to shed a number of the fruit.

GROSS SHOOTS ON TRAINED TREES.—Peach, Apricot, and Plums, are especially liable to form extra strong shoots, and if these are not checked they quickly spoil the shape of the trees. Not only do these gross shoots rob the other branches, but they are not calculated to eventually develop into good bearing wood. If they are necessary for furnishing blank spaces, lay them in, taking care to depress them as much

as possible, and if several of the leaves are removed from them this will further check such over-luxuriant growth. If this remedy fails, they must be stopped and the side shoots also kept pinched back. In very many instances they are best pulled out of their sockets or cut clean off. A timely removal is most advisable, this diverting the sap to the formation of medium-sized well-ripened growth all over the trees.

WATERING STRAWBERRIES.—There was never a better prospect of abundance of Strawberries, but where the plants are rooting in poor or untrenched ground the exceptionally hot and dry weather experienced will have rendered them very dry at the roots. They are essentially moisture-loving plants, and unless assisted at fruiting time in very many instances the crops will be of short duration. Driblets of water or liquid manure will be quite thrown away on them. It is better to do part of the beds well than to merely moisten the surface of all the ground. They should have liberal supplies of pond water if possible two nights in succession. It is not advisable to use any kind of liquid manure at this advanced stage, as this cannot well be kept off the fruit. At the same time, if some kind of fertiliser can be washed in the crops will be greatly benefited thereby. A sprinkling of guano, bone manure, Clay's fertiliser, or some other kind of soluble artificial manure applied prior to giving

no check is given likely to induce the premature ripening of the wood and foliage. Keep the latter free from red spider by syringing occasionally, and if necessary apply an insecticide, as it is of the greatest importance that the foliage be kept healthful and ripen naturally. Laterals must be kept stopped, but where there is space to allow of growth being made without overcrowding, encourage it, thus promoting root action, which prevents the wood and foliage maturing too early. All shoots that have borne fruit and are no longer required should be cut away to admit light and air freely to the growths, and if there is too much crowding of the shoots for next year's bearing thin them well out, alike to make space for the free admission of light and air, and the action of water to cleanse the foliage from red spider.

Fruit Ripening.—With a view to prolonging the season of fruit fire heat may be discontinued, and air admitted freely day and night, maintaining a good moisture at the roots to compensate for the lessened moisture in the atmosphere consequent upon the fruit ripening. Where, however, it is not desired to retard the fruit a temperature of 60° to 65° and 70° to 75° by day, and free ventilation will enable the crop to swell freely and develop good-flavoured fruit, allowing a rise of 10° to 15° from sun heat, the atmosphere being kept dry, but the floors and other

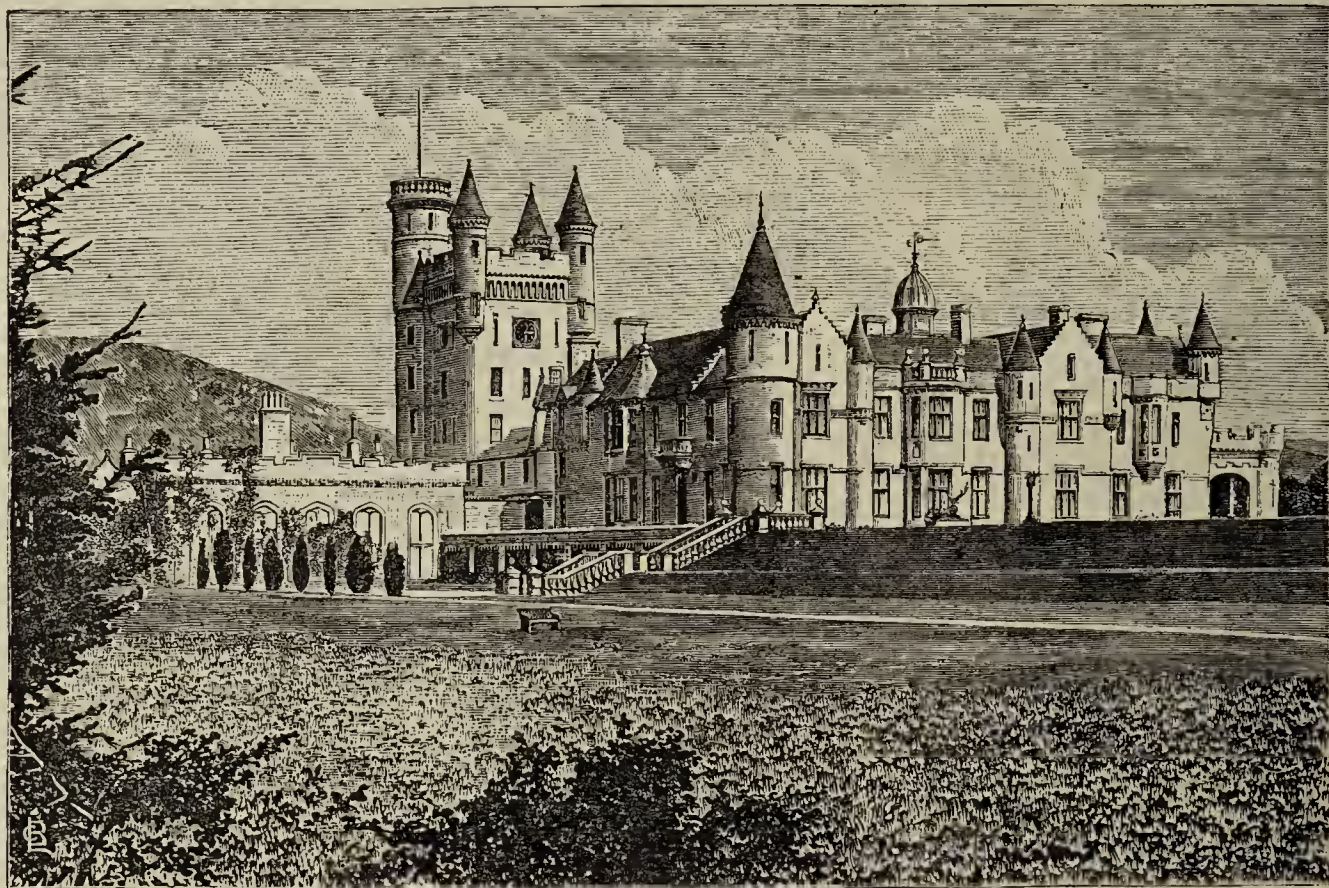


Fig. 86.—BALMORAL CASTLE. (See page 511.)

the second watering and well washed in will have a marked effect, more especially in swelling the later fruit. A dressing may also be given in the event of soaking rains falling before the crops are cleared off.

BIRDS AND THE STRAWBERRIES.—Blackbirds are at the fruit almost before ripening commences. The gun is the best remedy where large breadths are grown, but in small gardens, wholly or partially surrounded by good cover for birds, nothing but nets will serve the fruit. We prefer to erect a light framework of stakes and tar twine, and over these strain the netting at a sufficient height for anyone to walk or crawl under them. When the nets are merely thrown over the beds, the birds settle on the top and help themselves to the fruit through the meshes. Besides, new netting is very injurious to the foliage, and ought always to be kept clear of it.

FRUIT FORCING.

PEACHES AND NECTARINES.—*Early Forced Trees.*—Those continuously forced to ripen their fruits in May have a great strain upon their energies, as they have to make the growth during the early spring months and mature it in early summer. It is necessary to ventilate to the fullest extent after all the fruit is gathered, removing if possible the roof lights about midsummer or before the end of the month; or if they are not moveable (which is a great mistake), in addition to full ventilation, the border should be frequently damped and duly watered so that

available surfaces should be damped so as to afford a certain amount of air moisture for the benefit of the foliage. Moisture at the roots must be given both to the inside and outside border, and as a frequent application is undesirable during the ripening a mulching of rather short dry material will lessen the necessity for it.

Fruit Swelling.—In houses where the fruit is taking the second or last swelling after stoning employ the syringe vigorously to keep down red spider, as if it gets a hold before the fruit commences ripening it will seriously impair the quality of the fruit and affect disastrously the foliage, preventing it perfecting the buds for future bearing. Keep the border well watered through a mulching of short manure, giving a sprinkling over the surface of guano or some other approved fertiliser, and wash it well in. Admit plenty of air, especially in the early part of the day, but to insure the fruit swelling to a large size close early with abundance of atmospheric moisture, allowing the heat to rise to 90° or more afterwards. Let the fruit be turned with its apex to the light, and draw the leaves aside or shorten them so as to admit light and air to the fruit, and thereby secure its even colouring and ripening. Keep the shoots well tied down. Pinch laterals on the strong shoots back to the lowest leaf, and thin out the growths where crowded, removing superfluous shoots.

Late Houses.—Admit air freely. Syringe morning and afternoon. Keep the shoots tied down as they advance, reduce the fruit to the quantity required for the crop, or a few more may be left than will be

required to allow for casualties in stoning. Mulch both the inside and outside borders with short manure, and give water abundantly. Shoots not required for next year's crop and those not wanted for furnishing the trees should be removed, keeping any laterals upon strong shoots closely pinched. Young trees should be properly disbudded; and the shoots for next year bearing, if they are disposed to elongate beyond 18 inches, may be pinched at 12 to 15 inches, stopping the laterals at the first leaf, but extensions or main shoots should be allowed to grow their full length provided they are evenly balanced and there is space.

Gathering the Fruit.—Great care is necessary in removing the fruit of Peaches, as the least pressure makes a mark and spoils its appearance. A piece of wadding should be held in the hand and the fruit removed by gentle pressure, then laid gently in a padded shallow basket. The fruit ought not to remain on the trees until it is dead ripe, and allowing it to remain until it falls is a bad practice. Where that course is allowed the fruit should be caught in the fall by some netting fixed a short distance from the trees, and looped to form pockets and so prevent the fruit damaging each other by contact. Morning is the best time for gathering the fruit, and it should be placed in a cool room to mature before being sent to table.

FIGS.—Second Crop.—The first crop being gathered, generous treatment will be required to swell the second, syringing twice a day to keep red spider in check, and affording liquid manure whenever water is required, trees in pots requiring it daily, and those in borders once or twice a week, according to the vigour of the trees and the extent of the rooting area, those with the border of limited extent requiring it more frequently than those with the roots less restricted. The second crop should be thinned where thickly set before the Figs are the size of Walnuts; and in thinning reserve the largest fruits at the base of the shoots. All the trees should be mulched over the roots with short manure, especially those in pots with richer material and oftener renewed. Keep the growths thin, and with their point well up to the light.

Fruit Ripening.—A free circulation of air is imperative, and it should be warm; therefore gentle fire heat may be necessary in dull weather. It is also important that the fruit be kept dry, but a moderate degree of air moisture is necessary for the benefit of the foliage. Those conditions are essential to high quality: not less so is tying-in and regulating the growths by thinning and stopping.

Young Trees in Pots for Early Forcing.—Those coming on for that purpose must not on any account be neglected, or they will disappoint the grower. They must have all the light possible, and not be at a greater distance from the glass than is necessary for their growth, keeping them well syringed and supplied with liquid manure so as to insure sturdy growth: and when the growth is complete they should have abundant ventilation so as to ripen it thoroughly. In order to insure rest to the trees they may, when the growth is matured, be placed outdoors in a sunny corner, but in a dull and wet period this should be avoided, or means should be at command for warding off heavy rains. It is essential that Fig trees for early forcing have the wood matured early, and be given a few weeks' rest—the more complete it is the better.

THE BEE-KEEPER.

PRACTICAL BEE-KEEPING.

No. 13.

WHEN a bee-keeper has decided to adopt one of the three systems of management before laid down he will naturally inquire, unless he already possesses the necessary knowledge, how his stocks must be managed to bring such a system to a successful issue. It will also be of no little practical value to every bee-keeper if he is able to learn how to manage an apiary upon each of these several systems, because, although this year he may be so circumstanced that he judges the first system to be the more profitable one for him to adopt, another season a change of residence may necessitate a change in his management if he desires to obtain the greatest results. All these three methods shall, therefore, be treated at length and in order. When stocks are to be managed upon the first, or non-swarmling, system there are several points to which special attention must be paid, and upon the care and attention paid to these points depends success and failure.

From time to time some system of management, which it is claimed will entirely prevent the issue of swarms

against the wish of the bee-keeper, is introduced, and for a short period appears to be attended with success. I do not believe that the bee-keeper has yet drawn breath who can, in a practical and easy manner, prevent a swarm from issuing if the bees have determined to throw off their surplus population. It is useless to clip the wings of the queen and to destroy queen cells; this may postpone the evil, but will not prevent it. The only practical way of preventing the issue of a swarm is to take away the desire by removing the necessity. By such a course a very great measure of success is assured. It is recognised that the desire for swarming is engendered by the necessity laid upon the bees in common with all other creatures of race-perpetuation, and, therefore, it is this necessity which we must remove, and the necessity having been so removed the desire will be lost. It is true that some difficulty attends upon the removal of the necessity, because the necessity returns upon the bees at certain periods. Now, the two principal causes which give rise to a necessity for increase, and hence engender the desire to throw off a swarm, are—

- 1, An old enfeebled queen.
- 2, A population too large for the hive.

A queen becoming enfeebled excites in the minds of the bees a fear of extinction unless they raise a successor. This they at once proceed to do, and in raising one generally raise several other princesses, thereby having, as it were, more than one string to their bow. If these young queens are raised at a time when the stock is strong and populous, the old queen leads forth a swarm, and leaves the young princesses to occupy the throne she abdicates. The old queen going with the swarm has some relaxation from her labour because the swarm has to build the cells, and the breeding season drawing gradually to a close there is less necessity for so large a supply of eggs being daily produced. In the following year perhaps the same event happens, until at last the old queen dies, and possibly, unless the bee-keeper gives assistance, the stock or swarm, of which she was then mother, is destroyed. If, instead of allowing this old queen to survive, the bee-keeper had in the preceding autumn supplanted her by a young fertile queen, the necessity occasioned by the enfeebled state of the queen, which would without such removal have been head of the stock, would have been removed, and the probability of the issue of a swarm, if due attention is given to the second point, will have been removed.

A young queen must be kept at the head of every stock. This is the first necessary step which must be taken to prevent the issue of a swarm.

The second point is one which requires much care and judgment in the bee-keeper, the slightest inattention often being the sure precursor of failure.

Supers must be provided immediately that the stock is ready for supering. Super must be added to super, so that there is always sufficient room to keep every bee at work, and to prevent the rapid rise in temperature which makes a hive too small for the colony located in it unbearable. A delay in placing the first super may occasion failure in spite of every effort made afterwards to remedy the mischief. I believe that no colony headed by a young fertile queen will ever throw out a swarm provided sufficient super room is given at the right time. It is difficult, I know, to tell the exact day when a stock is ready for supering, but it must be done if success is to follow our efforts. If there is any doubt a super should be placed during the morning of a fine day, and removed

again at night if not taken possession of by the bees. When once the first super has been placed successfully the after management is comparatively easy. But to return. Supers must supply room sufficient to contain all the bees. When a stock is well at work in supers, and fresh space is continually afforded in advance of the requirements of the bees, no swarm will issue provided the queen is healthy and fertile.

Upon such lines must those proceed who desire to give this system a trial. They must give their attention to these two essential points, and to every stock which they wish to prevent from sending out a swarm they must supply—

- 1, A young active queen in the preceding autumn.
- 2, Ample supering room.

Success or failure will mainly depend upon their own skill and judgment. If they fail to pay strict attention to these two points I cannot be blamed for their non-success, but by carrying out the above instructions I believe that the chance of failure is infinitesimal, and the certainty of success almost absolute.

It may be said by some that "ample supering room" is a very indefinite expression. It is so, I confess, but it is impossible to lay down a hard-and-fast rule; but it will be quite safe for me to say that during the whole of May, in fact until the Clover is well in bloom, a new super should be supplied as soon as the bees are properly at work in the one last placed, unless the weather is cold. So when the comb in the first super is built out then a fresh super may be placed beneath, but all depends upon the weather and the bees themselves. Between the placing of the first and second super a far longer time will ordinarily elapse than between the placing of the second and other supers. The more combs there are built out in supers prior to the Clover harvest the better the chance of securing a great profit. Five racks of sections, each containing twenty-one 1 lb. sections, ought to be in position in every hive every season, and in a good year, and in a good locality, every one should be filled. A stock must be poor and profitless unless it has population sufficient to work in 120 sections in a good year. The subject must now be left with the hope that all who make a trial of this system of management will succeed and prosper in their success.—FELIX.



All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

LATE INQUIRIES.—It is necessary to again remind correspondents that letters arriving on WEDNESDAY MORNING cannot be answered in the "next issue," which is then far advanced for press.

Address (A. K. C.).—The address you require is Messrs. W. & J. Birkenhead, Sale, Manchester.

Asparagus (E. O. Dalston).—The less you cut your Asparagus after the present time the better. Give the beds a good salting to destroy the small weeds, and apply liquid manure copiously to encourage strong stems this summer, as the finer they become the better will your Asparagus be next spring.

Seedling Pansy (W. H. T.).—Your Pansy flowers having been packed in dry cotton wool arrived in a much withered state, through the wool extracting the moisture from them and fading the colours. We can only say the variety appears to be a pretty miniature worth preserving, but we doubt if it possesses any material commercial value.

Repotting Auriculas (W. J.).—Most persons repot their plants in May, but, as "D. Deal," has recently stated, Mr. Bolton, who is an excellent grower, does not. We repotted a few plants in May, leaving some others undisturbed, and these latter are decidedly the better now. We do not apprehend that great injury has been done by what you call "neglect" in this matter.

Growing Cucumbers (Manchester).—As you have found your method of culture, with ventilation, satisfactory, why do you want to change? The non-ventilating system answers well with some growers for market, but all of them do not adopt it; and we have known some gardeners who have attempted it revert to the "old plan," and growers for market too; but this does not prove the non-ventilating method wrong in all cases and localities.

Thinning Raspberry Growths (W. James).—It is an excellent plan to thin out a number of suckers at this period of the year where there are many of them clustering from the roots. These if left injure each other, and the majority have to be cut out when dressing the plantations in winter. It is in every way better to draw out now those not wanted, and the others which remain will become the stronger and mature the better, hence being in good condition for bearing next year.

Cornflowers (Henley).—There is no difficulty whatever in having Cornflowers for cutting at this season of the year. We have plants 2 feet high, three or four of them planted together forming bushes of nearly the same diameter. They are covered with flowers and buds, and will continue attractive for a long time. The seed was sown—in fact, self-sown last August, and the plants coming up thinly assumed a sturdy habit, and sustained no injury from the frost and snow of winter. They were taken up, and planted in their flowering positions early in April.

Destroying Wireworm (G. P.).—Dress the ground with gas lime, one peck (level measure) per square rod, distributing equally over the surface, it being best applied in autumn and forked-in. The ground should be forked over again so soon in spring as the ground is in working order, and again before putting in the crop. It will drive them away if not destroy them. Many may be destroyed by baits of Carrots or Potatoes buried in the soil 1 to 2 inches deep, which should be examined daily, and the wireworms that have penetrated the baits destroyed, reinserting them in the soil. If the baits have a stick thrust through them, so as to serve as a handle, they are more readily taken up and examined.

Autumn-sown Onions for Exhibition (M. D.).—The seed should be sown the second week in August. The ground should be trenched as deep as the soil will admit without bringing up any bad soil, though if the bottom soil be bad it is well to loosen it. A good manuring should be applied, mixing it well with the soil, the manure being thoroughly decomposed. The ground should be made firm, and the seed sown in drills a foot apart. When the plants have a pair of leaves thin to 2 inches distance apart, and keep clear of weeds, stirring the soil between the rows. To avoid the maggot, when the plants show the second leaf water over them with p troleum—a wineglassful to three gallons of water, stirring well; let stand twelve hours, then stir again, and after standing another twelve hours skim off the oil from the surface, watering the plants with the clear or skimmed water only. This may be repeated in the early part of April, May, and June respectively. In March you may remove every three plants, leaving the fourth, planting them in well-manured deeply trenched ground in rows a foot apart, and 9 inches apart in the rows, the ground being well firmed before planting. All that is wanted is to water until established and to keep clear of weeds. A sprinkling of soot may be given every month, commencing with March and continuing until June, applying in such quantity as just to blacken the surface, applying guano between the soot applications at the rate of 2 lbs. to 30½ square yards, which will cause the manures to be applied at fortnightly intervals. If the weather be dry at the time of applying the manures they should be given in liquid instead of solid form—one peck of soot to thirty gallons of water, and 2 lbs. guano to the same quantity of water, the watering to be at the rate of one gallon per square yard.

Petunias in Pots (J. Edwards).—You are right: they are very beautiful when well grown, but too often seen "drawn and weedy-looking." The following is a good method of culture:—Supposing a plant to be in a 60-pot, and to have passed through the winter unscathed, it should be a low bushy plant well furnished with branches and healthy leaves. The soil for repotting being moderately dry, let the plants be brought out of the greenhouse to the bench, and prepare the pots to receive them. If old and dirty let them be clean-washed, and do not use them till they are perfectly dry. Put in drainage in the usual way; place some rough siftings over the drainage, and upon them place as much soil as will raise the ball of earth the plants are growing in to the level of the rim of the new pots; then turn the plants in succession out of the pots, remove carefully the drainage that may be attached to each ball, place the plant in the fresh pot, and fill round the ball the new compost till the pot is full, then give a gentle stroke upon the bench, and fill up the deficiency. The old ball should then be covered about half an inch, and a small space left below the level of the rim, then give a gentle watering, and return them to the greenhouse, placing them close to the glass. As they grow take care to stop each shoot, thereby inducing a bushy habit. The tops, if required, may be made use of as cuttings. In this stage the plants will require constant attention to keep them duly supplied with water, and plenty of air whenever the weather is mild. About the middle of April they will require a second shift into larger pots, into the same compost, using the same precautions as to drying the soil, draining the pots, and so forth. Most probably the green fly will now make its appearance, and it must be

instantly destroyed by frequent fumigations of tobacco. When the weather becomes warmer they will grow much stronger and bushy in a cold frame or pit upon a layer of coal ashes than on the greenhouse stage. A third and last shift will be necessary in June; the plants should then be put into pots 9 inches in diameter, and in these they are to flower. As soon as the usual inhabitants of the greenhouse are removed into their summer quarters the Petunias will be in a fit state to take their place. Plenty of air must be given, and the roof should be shaded whenever the sun shines brightly.

Election of Pansies (F. S., Durham).—You are not in error. An election was conducted by Messrs. Wm. Paul & Son, Paisley, two years ago. They asked twenty-five of the leading amateur and gardener growers who compete so successfully at the great Pansy shows to furnish them with the names of what they consider the best twenty-four Fancy Pansies, the best eight Show dark selfs, the best five Show white selfs, the best five Show yellow selfs, the best nine Show white grounds, and the best nine Show yellow grounds. We have given the number of votes the varieties received:—**FANCY PANSIES:** May Tait (Laird & Sons), 25; W. Cuthbertson (Dobbie), 25; Catherine Agnes (Dobbie), 25; Miss Bliss (Downie and Laird), 24; Evelyn Bruce (McComb), 23; Jas. Gardener (Downie & Laird), 22; Mrs. Finlay (Samson), 22; Mrs. T. McComb (McComb), 21; Mrs. Jamieson (Downie & Laird), 21; Mrs. G. P. Frame (Weir), 20; Bob Montgomery (Paul), 19; Craigforth (Brodie), 19; Endymion (W. Dickson), 18; Miss J. Orkney (Dobbie), 16; Mrs. W. Stewart (Stewart), 15; David Saunders (Paul), 12; John Gold (Weir), 12; Agnes Mitchell (Paul), 10; Mrs. J. Stewart (Paul), 10; Mrs. J. Downie (Sutherland), 10; Mrs. Goodwin (Dobbie), 10; Mrs. Storrer (Paul), 9; Charles Stansell (Stansell), 9; Perfection (Dickson & Co.), 9; Mrs. Barrie (Downie & Laird), 8; Ruby (Laird and Sons), 8; Mrs. Forrester (Downie & Laird), 8; David Wallace (Stewart), 8; Earl Beacousfield (Samson), 8; Mrs. Duncan (Robertson), 6; Bessie Stewart (Paul), 5; Maggie Weir (Frew), 5; Mrs. Sword (Sutherland), 5; Flora Gem (Matheson), 5; A. Macmillan (Dobbie), 5; Robert Godwin (Dobbie), 5. **SHOW PANSIES.—Dark Selfs:** Rev. J. Morrison (Taylor), 25; D. Malcolm (Cuthbertson), 23; Peter Lyle (Paul), 19; Mauve Queen (Paul), 18; Andrew Miller (Paul), 17; Crosshill Gem (—), 14; Harry Paul (Paul), 13; Alex. Watt (Paul), 11. **White Selfs:** Mrs. Galloway (Paul), 23; Mrs. Dobbie (Dobbie), 23; Mrs. Cadzow (Dobbie), 22; Mrs. Turnbull (Dobbie), 21; Mrs. Goodall (Paul), 13. **Yellow Selfs:** Gomar (Ross), 25; G. McMillan (Dobbie), 24; W. Crockett (Dobbie), 24; Lizzie Stewart (Dickson & Co.), 11; Golden Bee (Paul), 6; **White Grounds:** Mrs. J. G. Paul (Paul), 24; Mrs. James Millar (Paul), 24; J. Foote (Downie & Laird), 24; Miss Ritchie (Dobbie), 19; Miss Barr (Robertson), 18; Jeanie Grieve (Dickson & Co.), 18; Miss Meikle (Paul), 14; Mrs. Stewart (Stewart), 8; Miss Baird (Paul), 6. **Yellow Grounds:** D. Dalglish (Robertson), 25; William Robin (Paul), 22; J. B. Robertson (Robertson), 20; Robert Pollock (Paul), 15; Lizzie Billock (Sutherland), 15; Lord F. Cavendish (Robertson), 13; Thomas Ritchie (Robertson), 12; Bailie Cochrane (Dickson), 11; G. S. Veitch (White), 10.

Epacris Culture (P. King).—These plants are highly attractive and useful for affording flowers for cutting. They are by no means difficult to grow. Suppose that the plants are obtained in 4½ or 6-inch pots during March or April or in September. At the latter period, of course, we secure them in bloom for the first season. Their flowering will be over by the middle of April; they should then be pruned and carefully watered for a time, or until they are growing freely. We usually remove Epacris to a pit after pruning. When the bloom is past remove all the decayed flowers and any seed vessels, and cut back the strong shoots to within 2 inches of their origin from the two-year-old wood, but the small twiggy shoots of not more than a couple of inches in length are not interfered with. Shoots of this description ought to be encouraged to as great an extent as possible by checking the growth of the strong shoots by frequent stopping. When removed to the pit—say at the end of April—the plants are kept just moist, but a good supply of water is afforded before they are affected by dryness. Any potting is best done when the shoots are about an inch long. Turning the plants out of the pots, remove the drainage carefully, and loosen the sides of the ball with a pointed piece of wood. The pots should be well drained to one-fourth of their depth; place a large crock over the hole, then some rather large pieces, and finish off with small. Over the drainage half an inch of charcoal that will pass through a three-quarter-inch and not a quarter-inch sieve is excellent. The soil may consist of three parts sandy fibrous brown peat chopped up very small (the roots and stems of the Heather picked out), and one part of light very turfy loam, with half a part of charcoal broken to pass through a half-inch sieve, and a like proportion of silver sand. Place enough in the pot to bring the collar of the plant level with the rim of the pot; put the compost round the ball, ram it pretty tightly with a piece of lath, and in this way bring it up to within half an inch of the rim. Large shifts are not good. A pot 1 to 1½ inch larger than that in which the plant has been previously growing is sufficient. Finish off with a dash of silver sand on the surface. Water carefully after repotting, and take care that the centre do not become dry; but if the plants are deluged with water they will soon appear sickly and die. When the roots are pushing freely in the fresh soil water liberally, but without rendering the soil sodden. In Epacris culture no stakes nor ties are wanted, but stop the strong shoots when they have grown 3 inches, and repeat the stopping whenever the shoots attain this length until August, then leave it off; and in October, if there are any young shoots longer than 6 inches stop them. This will keep the plants very compact, and they will have none of those long straggling shoots that flower at the base and for a great extent at the end are bare of bloom. Such irregular growth may even be stopped during the winter or blooming season. This throws more vigour into the little stubby shoots, which are mostly spikes of bloom. The plants are kept in the pits without heat from April until the middle or end of September, and have abundance of air, though for a fortnight or three weeks they are kept rather close. In this way they make very firm wood, and flower remarkably well. They thrive better in pits than in houses in summer, from the former having more moisture. In the house they have a light and airy position, come into bloom in November or December, and continue flowering till April in

a temperature of 40° to 45° from fire heat. In watering Epacris care should be taken not to pour the water directly on the stems of the plants, but just within the pot's rim, for when it is poured on near the stem, there being few or no fibres there to take it up, it destroys the bark, and the plants decay at the neck.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (W. H. C.)—*Iris pallida dalmatica*, very attractive.

COVENT GARDEN MARKET.—JUNE 22ND.

TRADE brisk with good supplies. A few outdoor Strawberries to hand. Prices generally as last week.

FRUIT.

	d.	s.		s.	d.
Apples, ½ sieve	10	0	Oranges, per 100	6	0 to 12 0
Nova Scotia and			Peaches, dozen	4	0 13 0
Canada, barre 110 0	13	0	Pears, dozen	0	0 0 0
Oberries, ½ sieve	0	0	Pine Apples, English,		
Cobs, 100 lbs.	0	0	per lb.	1	6 0 0
Figs, dozen	3	0	Plums, ½ sieve	0	0 0 0
Grapes, per lb.	2	0	St. Michael Pines, each	3	0 0 0
Lemons, case	10	0	Strawberries, per lb. ..	0	0 0
Melon, each	2	0			

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes, dozen ..	1	0	to 2	0	Lettuce, dozen	1	0	to 1	6
Asparagus, bundle ..	1	6	4	0	Mushrooms, punnet	0	6	1	0
Beans, Kidney, per lb.	1	3	0	0	Mustard and Cress, punt	0	2	0	6
Beet, Red, dozen ..	1	0	2	0	Onions, bunch	0	3	0	6
Broccoli, bundle ..	0	0	0	0	Parsley, dozen bunches	2	0	3	0
Brussels Sprouts, ½ sieve	0	0	0	0	Parsnips, dozen ..	1	0	0	0
Cabbage, dozen	1	6	0	0	Potatoes, per cwt. ..	4	0	5	0
Capsicums, per 100 ..	1	6	2	0	" Kidney, per cwt.	4	0	0	0
Carrots, bunch	0	4	0	0	Rhubarb, bundle ..	0	2	0	0
Cauliflowers, dozen ..	3	0	4	0	Salsify, bundle	1	0	1	6
Celery, bundle	1	6	2	0	Scorzoners, bundle ..	1	6	0	0
Coleworts, doz. bunches	2	0	4	0	Seakale, basket ..	0	0	0	0
Cucumbers, each ..	0	4	0	6	Spinach, per lb. ..	0	3	0	0
Endive, dozen	1	0	2	0	Spinach, busbel ..	0	3	0	4
Herbs, bunch	0	2	0	0	Tomatoes, per lb. ..	0	9	1	0
Leeks, bunch	0	3	0	4	Turnips, bunch	0	4	0	6

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.
Aralia Sieboldi, dozen	8	0	to 12	0	Fuchsia, dozen	4	0	to 9	0
Arbor vite (golden) dozen	6	0	9	0	Genista, dozen	0	0	0	0
" (common), dozen	6	0	12	0	Geranium (Ivy), dozen	4	0	6	0
Azalea, dozen	18	0	30	0	" Tricolor, dozen	3	0	6	0
Begonias, dozen	4	0	9	0	Hydrangea, dozen ..	9	0	12	0
Calceolaria, dozen ..	4	0	9	0	Lilies Valley, dozen ..	9	0	18	0
Cineraria, dozen	4	0	8	0	Lilium longiflorum, doz.	18	0	30	0
Creeping Jenny, dozen	3	0	4	0	Lobelia, dozen	4	3	6	0
Dracena terminalis, doz.	30	0	60	0	Marguerite Daisy, dozen	6	0	12	0
" viridis, dozen ..	12	0	24	0	Mignonette, dozen ..	4	0	9	0
Erica, various, dozen ..	18	0	30	0	Musk, dozen	2	0	6	0
Euonymus, in var., dozen	6	0	18	0	Myrtles, dozen	6	0	12	0
Evergreens, in var., dozen	6	0	24	0	Palms, in var., each	2	6	21	0
Ferns, in variety, dozen	4	0	18	0	Pelargoniums, dozen ..	6	0	15	0
Ficus elastica, each ..	1	6	7	0	" scarlet, doz.	3	0	9	0
Foliage Plants, var., each	2	0	10	0	Spiraea, dozen	6	0	12	0

OUT FLOWERS.

	s.	d.	s.	d.		s.	d.	s.	d.
Abutilons, 12 bunches	2	0	to 4	0	Marguerites, 12 bunches	2	0	to 6	0
Anemones, 12 bunches	2	0	4	0	Mignonette, 12 bunches	4	0	6	0
Arm Lilies, 12 blooms	3	0	6	0	Myosotis, 12 bunches	2	0	6	0
Azalea, 12 sprays ..	0	6	1	0	Narciss, 12 bunches ..	2	0	6	0
Bluebells, 12 bunches	1	0	1	6	" White, English, bch.	0	0	0	0
Bouvardias, bunch ..	0	6	1	0	Pansies, 12 bunches ..	2	0	4	0
Camellias, blooms ..	1	0	3	0	Pelargoniums, 12 trusses	0	9	1	0
Carnations, 12 blooms	1	0	2	0	" scarlet, 12 trusses	0	4	0	6
" 12 bunches ..	0	0	0	0	Poinsettia, 12 blooms ..	0	0	0	0
Cornflower, 12 bunches	3	0	6	0	Primula (single), bunch	0	0	0	0
Daisies, 12 bunches ..	2	0	4	0	" (double), bunch ..	0	9	1	0
Encharis, dozen	4	0	6	0	Polyanthus, 12 bunches	2	0	4	0
Gardenias, 12 blooms	1	6	3	0	Ranunculus, 12 bunches	3	0	6	0
Hyacinths, Roman, 12					Roses, 12 bunches ..	4	0	9	0
" sprays	0	0	0	0	" (Indoor), dozen ..	0	9	1	6
Ixia, 12 bunches	2	0	4	0	" Tea, dozen	1	6	8	0
Lspageria, white, 12 blms.	0	0	0	0	" red dozen	2	0	4	0
Lilium longiflorum, 12					Rose le Mois, 12 bunches	6	0	8	0
" blooms	3	0	6	0	Stephanotis, 12 sprays	2	0	4	0
Lilac (white), French,					Tropaeolum, 12 bunches	1	0	2	0
" bunch	4	0	7	0	Tuberose, 12 blooms ..	0	9	1	0
Lily of Valley, 12 sprays	0	9	1	0	Tulips, dozen blooms ..	0	0	0	0
" 12 bunches ..	2	0	6	0	Whits Pinks, 12 bunches	1	0	4	0



FORAGE CROPS.

GLORIOUS weather heralds the beginning of the hay harvest once more. A clear sky day after day is an

incentive to begin this important work to which most farmers yield, for if we do not make hay when the sun shines we cannot justly complain if subsequently it is spoilt by heavy rain. When to begin? is the momentous question by which the minds of so many men are exercised. Is it best to do so just as the crop is coming into flower, when it is in full flower, or just as the flowers fade? For general guidance we might answer that the best time is just when the crop is in full bloom, and before any demand is made upon the economy of the plant in the development of seed vessels. But seasons occur when we may advantageously break through rules, and the present season appears to us to be one of them. To let slip fine weather for the sake of seeing all the flowers expand before beginning mowing is simple nonsense—nay, it is more, for it is a grave error. Said a clever old farmer to us only a day before writing this article: “I have had too much musty Clover in my day to waste such fine weather for haymaking now,” and he went on to say: “Why should I wait? I know that I am mowing Sainfoin and Red Clover before the growth is in full bloom, but then while waiting for another inch or two of growth I may lose the fine weather, and by mowing at once I make sure of a fine lot of stover, and may fairly reckon upon a vigorous second growth, which I shall either also mow or feed off in folds, or save for seed according to the state of the weather later on.”

We have advisedly taken “Forage Crops” for the title of this article, because we wish to call attention to the importance of the exercise of caution in laying down land to pasture. If the price of corn continues low we shall certainly have more and more land in pasture, but we shall also maintain a due proportion of other forage crops upon every farm. Take for example Sainfoin; what a bulk per acre of it do we get, not only in the first year, but also in the second and third also. For three years the culture of land under this crop is reduced to a minimum. We have recently had sheep and lambs in folds upon two fields of first-year Sainfoin. No forage crop is better than this—few so good to “finish” lambs upon, and the sheep have so thoroughly enriched these layers that the second growth is certain to be so good that we may turn it to profitable account either for seed, for stover, or for grazing. We shall not save it for seed, because that would exhaust the plant, and we wish to retain it for at least two years longer.

It is not, however, on all farms that Sainfoin can be grown, from the fact that it requires lime in the soil, or rather, we might say, soils with both lime and chalk. But the mixed layers of alternate husbandry and Clovers are open to every farmer. Clover-sick land do you say? Only a few hours ago while travelling by rail, and on the sides of an embankment alongside the line, to Norwich, we saw occasional patches of Clover high up upon the slope where the hot sun and drought must have tried it sorely, yet there surrounded by parched and stunted turf were the Clover patches, green, vigorous, and positively rampant. What had happened to those isolated spots to induce such vigorous growth of one forage plant, while another surrounding it was sickly and languishing? Why, just this, each patch of Clover had sprung up where the clippings of the railway boundary hedges had been burnt, and it was undoubtedly the potash of the ashes that had imparted vigour to the Clover under such peculiar conditions of position and exposure to the effects of heat and drought.

The lesson is obvious: Clover revels in potash, and

therefore one of the best forms of applying it is in that of the cheap and simple one of a dressing to the land of wood ashes. More than once previously have we drawn attention to the value of wood ashes in the culture of Clover. We have used them on permanent pasture with excellent results, but we must own that on permanent pasture some nitrogen should be mixed with them.

For mixed layers we require really fertile soil, containing in due proportion nitrogen, potash, and phosphorus; we then get a wonderful bulk per acre of splendid forage, much more than is usually obtained from permanent pasture, and we may by annual dressings of chemical manures in February, or by sheep folding, maintain such layers in full vigour for full four years. Such crops enable us to keep down labour expenses, a matter of vital importance under the agricultural depression.

(To be continued.)

WORK ON THE HOME FARM.

The hot dry weather though favourable to Wheat has proved trying to other corn, especially upon light land. Wheat absolutely revels in such weather, and we never saw the crop in better condition at this season of the year; the plant is very vigorous and robust, and Wheat ears will soon be plentiful enough. Winter Oats, too, have improved wonderfully, and the beneficial effects of the timely application of manure may now be seen unmistakeably in this crop. We have not had to put sheep upon any of our Oats, but we have seen it done upon farms where green food was scarce.

Hoes, ploughs, harrows, and cultivators have been in full swing upon land in preparation for late Turnips and between Mangolds and Swedes, one or other such implements being brought into use as could be done to best advantage. Keep down the weeds say we, and there never was a better opportunity than the present fine weather for doing this. Land badly infested with couch grass has been ploughed and harrowed repeatedly at intervals sufficiently long to expose the grass roots fully to the sun. That weeds draw fertility from the land is a self-evident fact; to suffer them to do so and then subsequently to make good the waste by the application of manure is clearly a mistake. By all means let us practise strict economy, but let us also learn when and how we can best do so.

Haymaking is going on briskly, the first crop of Sainfoin, Lucerne, Clover, and mixed layers being very good. Our meadow hay crop on the home farm is generally very good; there are, however, two or three poor pieces of pasture which must have special treatment before another spring comes round. We have not had the flock out on the park or meadows since they were laid in for hay, as we had plenty of roots and green crops upon arable land for them up to the present time. They are now upon Winter Tares, which are a good crop, but the land is light, and the drought has laid hold of it so that growth has ceased in the Tares and the sheep will soon be through them. We hope, however, to have enough pasture cleared of the hay crop in readiness for them by the time they require it. Luckily our first field of pasture from which the hay was cleared contains much *Dactylis*, which gives a strong second growth sooner than any other sort of grass.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain
		Baromet- ter at 32° and Sea Level.	Hygrome- ter.		Direction of Wind.	Temp. of 1 foot.	Shade Tem- perature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.	On grass	
1887.											
June.											
Sunday	12	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
Monday	13	30.201	65.9	59.0	N.E.	58.6	78.2	51.2	124.8	46.0	—
Tuesday	14	30.165	67.4	59.9	N.	60.2	81.8	52.1	124.8	43.6	—
Wednesday ...	15	30.237	71.1	68.2	N.	61.4	79.6	55.6	112.9	47.7	—
Thursday	16	30.305	71.6	61.4	N.E.	61.4	85.3	51.3	124.9	45.2	—
Friday	17	30.253	67.1	60.9	N.E.	62.8	79.9	56.8	119.1	49.4	—
Saturday	18	30.312	67.9	60.2	E.	63.0	75.4	53.9	118.6	52.6	—
		30.323	66.8	60.1	N.E.	63.2	80.4	50.2	122.8	47.2	—
		30.279	68.3	60.0		61.5	80.1	53.0	121.7	47.4	—

REMARKS.

- 12th.—A bright summer day.
13th.—Bright and hot; the first day of the year with a maximum temperature above 80°.
14th.—Fine and bright, but slightly hazy at times.
15th.—Fine and very hot; maximum temperature above 85°.
16th.—Bright, with pleasant breeze.
17th.—Bright, with cool N.E. wind.
18th.—Fine and hot.

A week of rainless hot summer weather. Temperature about six degrees above the average—G. J. SYMONS.



30	TH	Shepperton Show.
1	F	
2	S	
3	SUN	4TH SUNDAY AFTER TRINITY.
4	M	
5	TU	National Rose Society's Show, South Kensington.
6	W	Twickenham, Wimbledon, and Brighton Shows.

OLD ROSES.

WARRIORS of the Rose are preparing for the fray, burnishing their armour, and reviewing their strategic plans for conquering former successful adversaries. Soon we shall see the pages of "our Journal" teeming with records of the conflicts, and the excitement almost induces some steady-going non-exhibitors to test their strength in the field.

Still, however, we content ourselves with witnessing the triumphs or defeats of others, revelling in the beauties of our own homely Rose trees and their plentiful blooms. For seeing perfection of individual form, and comparison of varieties, Rose shows are admirable institutions; but it is perhaps an open question whether the rosarian's chief pleasure is not found in watching the development of his treasures at home, and gathering them sparklingly fresh with the morning dew to adorn dainty vases or delight a friend. There is an indescribable satisfaction in wandering through a rosery and observing the objects of one's care during so many months, repaying us tenfold with brilliant or soft-tinted and fragrant flowers. This season the exceptionally dry weather has somewhat diminished the enjoyment, as they are coming with less substance and do not last so well; but the colours are excellent, and exhibitors may find some compensation in this.

Much is written about the "New Roses" every year, but few seem to think it worth while saying anything about "Old Roses;" yet there are many old varieties that possess all the charms we expect or desire in a Rose except the symmetry of form considered essential in varieties for exhibition. Unfortunately magnitude is regarded as an indispensable character also, and then too often there is an approach to what is correctly, but inelegantly, described as "lumpiness." Non-exhibiting amateurs, like myself, can happily disregard all such imaginary attractions, and find our satisfaction in a liberal supply of blooms, varied in colours and rich in fragrance. The last named quality is one that has been most neglected in recent years by raisers of new Roses, yet thirty or forty years ago it was one of the principal recommendations of candidates for popular favour. In richness of colours there has also not been much advance, for several varieties in cultivation forty years ago cannot be surpassed in that respect now. For example, the old *Géant des Batailles* was extraordinary for the brightness of its colour, and we have just cut a bloom that is almost dazzling in comparison with some of the best of the modern Hybrid Perpetuals, though not equal to them in form. Said Mr. T. Rivers, when writing about Roses in his agreeable manner, "It should have been named Etna, or Vesuvius, or Fire-

brand, or some such fiery name, for who ever saw anything amongst flowers so glowing, so live-coal-like?" *Cramoisie Supérieure* was another superbly rich Rose, and *Velours Episcopal* was equally remarkable for fine crimson shade and velvety substance of petal, but I have not seen it for many years, though the other two are sometimes found in old gardens.

The Cabbage Roses have gradually declined in general favour, mainly because their season of flowering is so much shorter than the Hybrid Perpetual group; yet they are very beautiful, and what can equal them in fragrance? From the time of Gerard, when the Holland Provence Rose was figured in his celebrated "Herball," until the middle of the present century, the Provence or Cabbage Roses were garden favourites, and still they have admirers. One variety that attracted much attention was the Unique Provence, which, I believe, was found as long ago as 1777 in a cottage garden at Needham Market, Suffolk, by a Mr. Grimwood, then a nurseryman at Kensington, and it was sent out by him. The flowers were pure white, of good shape, and the variety became a great favourite, as being quite distinct from the numerous crimson and rose-coloured forms of the same type. Some of the large Rose-growing nurserymen of the present day catalogue a variety under the name of the White Provence, but I have not had an opportunity of satisfying myself whether this is identical with the Unique Provence Rose, but probably it has been derived from it. The *Rose de Meaux* is included in this group, and a charming little early-flowering variety it is; while its sport, the *Mossy de Meaux*, one of the best-known of the old Moss Roses, introduces us to another beautiful type, of which there are scores of forms as much admired now as they were early in the century. The original Moss Rose seems to have made its first appearance in this country in 1596, having been brought from Holland with other horticultural curiosities or valuable additions to garden plants; but the *Mossy de Meaux* originated in a garden at Taunton, where it was found in 1814, and purchased for £5 by Mr. Sweet of Bristol. It is an exceedingly pretty variety, and though such Moss Roses as *Lancei*, which is remarkable for its fine crimson colour and well-formed fragrant blooms, have to some extent taken its place now, it should by no means be despised. With regard to the terms Provence and Provins, which are still applied indiscriminately to the *Rosa centifolia* or Cabbage group, it may be pointed out that it was long since decided that the Provins Rose belongs to the species *R. gallica*, and is quite distinct from the Provence. About Mitcham, where Roses have for many years been cultivated for their flowers, which are employed in the preparation of Rose water, *R. gallica* varieties or the Provins Rose are those grown, as they were also about Provins in France, which was celebrated at one time for a conserve of Rose petals. Under the *R. gallica* hybrids must be mentioned the interesting old striped Roses *Rosa Mundi* and *Village Maid*, the latter of which is occasionally seen named *York and Lancaster*, though this is a Damask Rose and distinct from the preceding, though all are pretty.

The China and Hybrid China Roses constitute a beautiful group, and some of these make handsome bedding Roses, flowering late into the autumn, but the strongest growers are best suited for pillars. One of the most noted of the section is *Général Jacqueminot*, which, in its way, is unsurpassed to the present time, and is highly appreciated in hundreds of gardens. Rivers' *George the Fourth* and the *Duke of Devonshire*, both

capital varieties, enjoyed a large share of popularity thirty years ago, but there are many of the type now which have been so intermixed with others by crossing that it is difficult to determine their proper position. The semi-double forms are very graceful, their delicate petals having a shell-like transparency.

The climbing or tall-growing straggling Roses suitable for covering walls, pillars, or arches include a great number of varieties of different types that in old gardens may be found scrambling about in grand luxuriance and producing their flowers by thousands. I have two of these covering a porch and intermingling their innumerable flowers in the most delightful confusion. They are old plants, their names having long since been lost, but they are just as much appreciated as if they boasted some long pretentious title. One has dark rough foliage and neat white blooms, occasionally slightly tinged with pink in the centre, but the majority came pure white, and the branches are crowded with flowers as closely as they can be produced. One beautiful branch arching across the porch is a natural wreath of pure flowers; they are, however, of little use for cutting except in the bud stage. An eminent rosarian has determined this to be a variety of *Rosa alba*, known as *Blanche Belgique*, and evidently of continental origin. The companion to this is very different in character; the flowers are a very pale pink, with delicate petals forming a compact oval bud, which does not open as full as the other, but is better adapted for cutting. This is regarded as the *Blush Boursault*, of which type there are some grand richly coloured climbing Roses, all distinguished by their free habit and marvellous floriferousness.

The Ayrshire Roses constitute another series of climbers or stragglers, of which Dundee Rambler, with semi-double white flowers, is one of the best marked varieties. The Evergreen and Polyantha Roses are others suited for similar purposes, and are charming when trained to pillars 10 feet or more apart, and then festooned from one to another. I am familiar with an old collection of these Roses near London where this method is adopted with delightful effect, both the pillars and the connecting chains being covered with flowers at the present time.

Perhaps these hurried notes may induce some of your numerous rosarian readers to favour us with a few observations on other old Roses, for there must be many like myself who still admire them.—AMATEUR.

LATE GRAPES.

REMEMBERING last autumn that a few complaints were made in the *Journal* respecting the shrivelling of late Muscats has induced me to offer a few remarks concerning the probable cause. It was considered by some that the sudden reduction of moisture both at the roots and in the atmosphere was the chief cause, and I have no doubt that in a great measure has something to do with it; but I do not consider that is the sole cause, although at the same time changes should be brought about gradually, so that the Vines may not feel the effect too suddenly. But the condition the Vines are in, and the way they have been previously managed, have a great deal to do with their being able to withstand any sudden alteration in their management. Late Grapes as a rule are allowed a long season of growth, and that growth to bring about the best results should (from the first signs of starting into leaf) be built up in a robust solid way, and the four things necessary—that is, light, heat, air, and moisture, must be brought to bear upon them in due proportion; one of the chief things, and one of which in our climate we cannot very well have too much light.

Before one begins to advance any particular information it is necessary to consider what state Vines are in, for to treat Vines with a weak constitution the same as those that are strong and in good condition, would be simply courting failure. Unfortunately (or perhaps I might more appropriately say fortunately, for I was

enabled to gain good experience by it), during my practice I have on one or two occasions had to take to Vines in a very bad state. Without in any way interfering with the roots, beyond giving a good mulching with manure, I have put very weak Vines into strong robust health in a couple of seasons, without entirely sacrificing the crop.

With weak Vines I like to encourage as much growth as is possible to be had under the glass without crowding it, and until this is obtained I stop but little. If plenty of growth can be had from the main laterals I keep the sub-laterals in check, if not I allow them their liberty until all the space is filled up. To get Vines strong, freedom from insects is absolutely necessary, for with healthy growth strength will soon be obtained, and the reverse if otherwise. Strong Vines in good condition I treat differently, but even these require special treatment, according to whether small or large bunches are required; if the former, the laterals may be closer on the rods than for the latter, for large bunches plenty of space must be allowed between the laterals. I generally stop at the second leaf beyond the bunch, and when the sub-laterals make their appearance (which they commence to do at the end of the shoot generally, directly after stopping takes place) I gradually rub them off except one, which I leave between the bunch and the base of the shoot, to act as a kind of safety valve, to prevent the base buds bursting. By so doing the base buds are more fully developed, and the risk of their being not properly ripened is reduced to a minimum, and the close pruning system may with a certainty be brought into practice without any risk of failure. When the latent buds burst they are allowed a little freedom to enable the available space for the foliage to be filled up; but a thick canopy of foliage is not to be recommended, but sufficient light should be admitted to solidify the growth as it is made, thereby gradually building up good sound growth, which cannot fail to be strong and fruitful.

Some good Grape growers differ in opinion as to admitting light to the bunches in the earlier stages of their growth, but, in my opinion, it is a mistake to grow the bunches under a dense shade, and then later on to subject them to full light, as some do with Muscats. I am aware that early black Grapes soon lose their colour if exposed to too much light, but I am inclined to think a great many are grown under too much shade; the colouring matter, not being substantial, soon flies. Late Grapes, I consider, require light, and those grown with a fair proportion will have better flavour and keep better than those grown under a dense shade, and it is my opinion that exposing the bunches after being previously in the shade is one of the causes that make them prematurely shrivel. As to the colouring of black Grapes, I am strengthened in my opinion in the observation I made here last year in an Alicante house. One of the rods was so weak that it did not make sufficient foliage to shade the few bunches that it had on it, and some of the bunches were exposed to full sunshine from the time of setting until they were cut, and yet they were coloured as well as any in the house, and had the appearance of keeping well had they been required.

Good ventilation on all favourable occasions must not be neglected, and as late Vines make most of their growth during the most favourable time of the year, no opportunity should be lost in giving abundance of air in hot weather, and care should be taken to begin giving air as soon as the temperature begins to rise in bright weather, which I believe is generally admitted to be a preventive of scalding. I once had some Black Hamburgs badly scalded through neglect in early ventilation, the house being a lean-to with an east aspect necessitated very early ventilation.—W. SIMPSON, *Knowsley*.

HORTICULTURAL PROGRESS.

I READ with great interest your admirable leader in last week's *Journal*, and with many of the facts there stated I was familiar, for I well remember the majority of the nurserymen and leading market growers in the west and south of London fifty years ago. During the period that has elapsed since there has been much progress in horticulture, and during the life of the Queen's illustrious Consort horticulturists had a noble and generous patron in that estimable Prince. Influential men do not seem to take so much interest in this delightful subject now as their position demands; they support much more freely objects less conducive to the national interests. In the progress of the last fifty years much has been done by private practical workers, who have introduced an immense number of new plants from various parts of the world which have been of great benefit commercially as well as ornamentally, and nurserymen have done much to provide plants that suit the tastes of the ever varying and changeable fashion of the times. Those that have been in general favour at one time have given place to others. Dahlias had their run and declined, but are now reviving in another form. Pelargoniums have changed from one class to another. Carnations are thought old-fashioned. Auriculas, the pets of dames of old. The Chrysanthemum has passed through many changes of form, but it is in a higher and more beautiful state than we have ever had it before, and although an old favourite the admiration for it

is still increasing. Our national emblem, the Rose, has made considerable progress, various sections have been produced that have their respective admirers. Fifty years back Orchids were scarce and not much in favour, but on account of numerous introductions they have become very popular, particularly among the wealthy, who have a taste for the rare and beautiful, and who have been at great expense in obtaining choice collections. There are many other plants which have had their rise and fall according to the tide of fashion. Much has been done for Begonias; in my remembrance Evansiana was almost the only one to be seen in a general collection of plants, but now there is great variety and beauty of foliage and colour of flowers which renders them highly desirable for grouping among other plants. It must be acknowledged that horticulturists have shown the capability for improvement in all kinds of plants that they have taken in hand, both in the open air and under glass their achievements are too numerous to mention, but their works will show the progress of the times. Rhododendrons and Azaleas have received great attention, and have well repaid the workers for their trouble. Much also has been done with Fuchsias, and although most graceful in habit and distinct in colour they have declined in favour among the plant-loving public, and are not so generally grown as formerly. There are some admirable colours in Gloxinias which command especial notice. Heaths have gone very much out of favour with a few exceptions.

In taking a general survey of the trade the demand has increased in proportion to the population. It is the ambition of many persons to show their respectability in their gardens. Although there were numbers of nurseries around London that did a good trade which are now almost lost to memory, their places being occupied by streets and houses, there are now many more on a larger scale a few miles distant from the smoke. A large trade is done in cut flowers, which have become much more fashionable than formerly, and has induced the continental nurserymen to send large quantities to this country with the effect of keeping down the prices of our home supply.

Of fruits and vegetables plenty of new sorts have been introduced, but considering the quality, hardiness, and productiveness generally speaking, I cannot see so much improvement as I should desire. There is not much gain in quality in fruits, if any. In vegetables we had good Marrow and other Peas. Our Potatoes were superior to the present day. Beans, Cabbages, Cauliflowers, Onions, Carrots, Parsnips, Celery, and indeed I may say everything, was as good and some things better. Those who imagine the old gardeners were without many of the good things that are now grown may be pleased to know that they had plenty for their requirements, and that they knew how to grow them without many of the appliances now at the command of horticulturists.—AN OLD GARDENER.

A JUBILEE INSECT—THE EARWIG.

ALMOST every year that passes over us is remarkable for the appearance of some insect or other in unusual plenty, perhaps more than one species, and it would be quite according to the usual course if 1887 were thus made memorable by an insect, leading us afterwards to look back and say, "Oh, that species swarmed in Her Majesty's Jubilee year!" Were I to hazard a conjecture as to what may prove to be the insect of this season, I should feel tempted to say, the earwig probably, or a leading one at least, for reasons I will give. It should be premised that this is an insect which occupies a special position; it is indeed a garden species, but also somewhat of an Arab in its habits. The earwig is detested by horticulturists, being specially injurious to many flowers and to fruit. It is disliked by the public as an unpleasant intruder into houses, and to picnic parties it is an object of alarm, being sure to turn up when an open air "feed" is going on, in company with caterpillars and spiders. Everybody is acquainted with the common earwig as a mature insect, but even amongst gardeners there are only a few that have made its acquaintance during its early stage of life.

Possibly it may be desirable to repeat once more, what has often been stated in scientific manuals, that there is no ground for the traditional belief that the earwig makes a point of entering the human ear whenever it can, and does serious mischief there. Those seemingly formidable forceps at the tail Nature chiefly designed to be used in folding up the wings. They are not venomous, nor are the jaws the insect possesses adapted for biting any substances that are not soft. It has been supposed, indeed, that the name ought to be "earwing," the reference being to the shape of the beautifully veined wings, which resembles that of the ear, but as "ear-piercer" and other equivalents expressive of the popular notion occur in various countries, this will hardly do. It is granted that an insect so fond of hiding might creep into the ear of anyone lying on the ground, but it could not possibly do any harm, and could at once be killed and removed by dropping in a little sweet oil.

Concerning the transformations of the earwig tribe, it will suffice to state that in the larval condition these insects, like the nearly allied crickets and grasshoppers, much resemble the matured form, but their mode of life is even more secluded than when they are best known, as they reside under bark or beneath loose soil, feeding upon vegetable substances chiefly, yet sometimes being carnivorous. De Geer was the first to announce the discovery that the mother earwig carefully attends upon her progeny long after the eggs are hatched, and others have repeated the observation, though for my part I have as yet to verify this; still, we may accept it as a fact. No doubt the young earwigs are frequently lost sight of amongst the host of subterranean insects. They

may be found of various sizes during the winter and spring months. Many of the autumn insects hibernate to reappear in the spring, hiding themselves in nooks and corners. I am inclined to think there is only a single brood each year, but would not be positive.

Now, it appears by Miss Ormerod's annual report, and we have evidence confirming this from a number of observers, that the common earwig, and also some of the smaller species, were notably abundant in 1886. Such was the case about North Kent, and in some of the London suburbs with which I am acquainted. Professor Westwood long ago stated that the earwig had its times of special profusion; one of these was chronicled as far back as 1755, when the insects seriously damaged the Cabbage crops, and it was remarkable last year how many complained of a new and startling appearance of hosts of earwigs amongst Brassicaceous plants. At Biggleswade, early in August, such quantities occurred in the fields at a depth of from 1 to 3 inches, that Turnips and Mangolds were actually destroyed by them. Later on during that month a plague of earwigs was reported from Great Missenden, where they also attacked Clover and Wheat. Near Reading Turnips suffered severely and Kale. Similar reports came from various places in Wiltshire and Kent. In some places the creatures became a domestic grievance. One gentleman writes—"They came in at all windows and doors, they dropped upon the tables, they swarmed in the pantry. Frequently they entered pastry after it was cooked, and even pushed their way into the bread. One night I amused myself by killing them upon the walls outside, and hit upwards of 1100 of them with a hammer in about half an hour. I took, then, a lantern, and examined a Privet hedge of many yards in length, and found quite as many earwigs as flowers."

One curious circumstance was that at Sittingbourne, Kent, an experimental Tobacco plantation was damaged by one of these, the particular species being *Forficula Corealis*; the insects ate holes in the leaves, and also gnawed the fleshy part of the stems. Associated with these attacks upon vegetables there was, of course, much harm done to flowers and fruit. One farmer suggested whether the ensilage system might not prove favourable to these insects, the silos affording them convenient abodes during the winter months, but this opinion has not met with general support. In one instance, where they were abundant in a silo, it was proved that they swarmed amongst the grass and Clover on the farm before the silo was filled. Looking at the circumstances of last winter and spring, it would seem they were, on the whole, favourable for the continuance of earwig life, since moisture is much liked by these insects, and it is, therefore, probable we may have many earwigs during 1887, for it is not an insect foe by any means easy to extirpate.—ENTOMOLOGIST.

ROSE-GROWING FOR BEGINNERS.

(Continued from page 503.)

WATERING.

WHEN it is remembered that plants have to take up nearly the whole of their food by means of water, it can very well be seen how necessary a proper supply is; but too much of anything is worse than too little; potted plants in the hands of beginners, I think, generally get too much. In the open ground Nature so adapts herself to circumstances, that with established plants it is rarely necessary to apply water—an exception to this might be where one was preparing for exhibition. I should never recommend watering with plain water—except where the plants were very dry—where liquid manure could be obtained. When we do water we must give a good soaking; wetting the surface only chills the ground, and is worse than useless.

MULCHING AND HOEING.

These, in dry neighbourhoods, are a great assistance in keeping the ground moist. Decayed leaves have a most wonderful power of retaining moisture, while manure is not to be despised. A thin layer of either spread over the beds in summer will be of great benefit to the Roses.

Surface-hoeing is the next best thing to mulching. Some people cannot understand how this prevents evaporation. In hot weather the ground bakes and cracks, which allows the moisture to escape, and dries the roots. The keeping of an inch or two of fine soil on the surface prevents these cracks, and helps to retain the moisture.

PESTS AND GARDEN VERMIN.

I have already incidentally alluded to some of these, but perhaps I may be excused if I just run quickly through them again. Under glass mildew and green fly are our main enemies. Smoking, as already advised, will quickly kill the latter, and good management, combined with softsoap, will generally keep away the former. I described the use of softsoap in a former article. Red spider is apt to be troublesome under glass, and is brought into prominence by the neglect of plants by allowing them to get dry, and keeping the atmosphere of the house too dry generally. When once it gets fairly hold in a house, it is, as far as I know, quite impossible to get rid of it. It is first noticed by the older leaves on a plant having an unhealthy look, and white lines and patches appearing on

them ; on turning the leaves, the underside is found to be covered with little white specks, much resembling very fine grains of white sand. If these plants are in pots the best plan is to put them outside for the rest of the season ; if they are planted out, the only way is to keep the syringe going, taking care to get well under the leaves, so that the insects which are always clustering on the underside will get the full benefit of the water. There are many insecticides in the market which may be used with the water, and which would probably help to destroy the insects, but my experience of them is nil, as I am thankful to say that I have not had any difficulty with the red spider so far, and I do not think anybody else will, if he only keep his eyes open, and act vigorously while the enemy is in a small and young state ; every day's delay means extra work and trouble in the future. Woodlice, though they seldom injure Roses, are often very annoying in Rose houses. These are very easily disposed of. A capital plan I saw some time ago spoken of was to procure two old dirty boards, the dirtier the better. These were to be placed on the floor or under the stages, one on top of the other, and carefully carried outside each day. A wholesale business may be carried on in the destructive line in this manner at very little expense of time and trouble. Mealy bug I have had no experience of, and I can say the same of scale and thrips. I do not think that these three trouble Rose growers much, at any rate those who look well after their plants.

In the open air the first insect trouble we meet with in the spring is generally maggots or caterpillars. These make nests for themselves by glueing the leaves of the Rose together, and as the shoots grow and form new leaves, they move on along the shoot, eating their way through everything. The only way to stop them is by hand-picking. I pull off the leaf in which the grub is concealed, and which can always be detected by its being curled up, and throw it away. Some persons squeeze the leaf between the thumb and forefinger. This kills the insect, but the leaf remains, and causes a waste of time as we pause to examine it each time we visit the plant. Another grub, called a borer, eats its way down through the interior of the stem of the shoot. He is discovered too late to save the bud. Hand-picking is the only remedy here also.

In the ground slugs and snails may sometimes eat away the very young shoots, but I never noticed any damage which I could trace to them ; but I find a large brown grub, about as thick as a lead pencil, which does not appear to be so innocent. Several times this spring I have noticed shoots from the bud about 6 or 8 inches long flagging, and on taking away the soil I find the stem eaten through, and always in close proximity to such plants I have found our brown friend coiled up snugly under ground. Some years ago I was very much troubled with a mysterious insect that devoured every leaf and young shoot as fast as these appeared. Nothing could be seen in the daytime, so I purchased a dark lantern, and on my first visit found the branches swarming with small beetles or weevils. The moment I touched a branch the whole lot fell to the ground and disappeared like magic. I afterwards destroyed the whole colony by picking them off and squeezing the life out of them. I wore leather gloves for the job. A sheet of white paper should be spread under the trees, so that any of the insects falling cannot make their escape before being seen.

Green fly is the next pest that makes its appearance, and the best way to do away with it is by means of a brush, laying the shoots in the palm of the hand and gently brushing away the insects. Syringing with tobacco water, or a solution of quassia chips, very simply made by boiling the chips in water, makes the shoots so bitter that the insects do not appreciate the flavour. A plentiful syringing with cold water—all insects hate water—as often as possible, will also help to lessen their number.

Later in the season mildew will probably appear ; something may be done perhaps to prevent its spreading, but I do not know of anything. A solution of copper answers well in France on the Vines, but I do not know exactly how it is made or applied. Here sulphur powdered on is generally used. Where certain varieties always show mildew each season the best plan is to abolish such varieties from the collection as soon as possible. Duke of Edinburgh is a Rose that invariably becomes covered with it here, but I am thankful to say it never spreads to adjacent plants ; if it did it would not remain long in the ground. Orange fungus is another similar pest which was very destructive last season. It comes from France originally I think, and in dry seasons will always be plentiful. I do not think anything can be done to cure it. Some unfortunate growers, in consequence of the position of their gardens, will always be martyrs to mildew ; but leaving these unhappy ones out of the question, I think that those who are tormented with vermin have, in most cases, only themselves to thank for it. Just as healthy individuals are free from disease, so are healthy plants. If we keep our Roses healthy and strong we shall have little trouble with parasites and such things.

A LAST WORD.

Another dip of the pen will bring me to a conclusion. I have said nothing about the moral side of Rose-growing, much on this point would be out of place here ; all I wish to say may be said in one sentence. It is this—where our highest aim in Rose-growing is simply the winning of cups and prizes, we can never hope to derive the full benefit from our occupation. No ; let us, if we will, cultivate Roses because of their purity and freshness—because of their beauty ; let us cultivate them because they bring us—condemned as we are, most of us, to spend so much of our time in the stifling and impure atmosphere of our towns—face to face with Nature, and enable us to admire and look upon one of the loveliest objects of her creation.

“How much of memory dwells within thy bloom,
Rose, ever wearing beauty for thy dower.
The bridal day, the festival, the tomb ;
Thou hast thy part in each, thou stateliest flower.
Wherefore, with thy sweet breath come floating by
A thousand images of love and grief ;
Dreams filled with tokens of mortality ;
Deep thoughts of all things beautiful and brief.
Not such thy spells o'er those who hailed thee first
In the bright light of Eden's glorious day ;
There thy rich blooms to crimson glory burst,
Tinged with no dim remembrance of decay.”

—D. GILMOUR, JUN.

A CALAMITY WITH GRAPES.

THE Editorial note under “A Hampshire Gardener's” letter, in last week's Journal, induces me to write a line or two upon the question of Grapes scalding. I can fully sympathise with “A Hampshire Gardener” in the loss he has sustained, and it will no doubt be a little consoling to him to know that he is not the only one who has lost more berries than they desired in the way indicated in his letter. For the last three weeks I have been caused some anxiety through a house of Grapes under my care being somewhat injured through scalding, but I am glad to say that my anxiety is at an end. It will be remembered that for some days previous to June 4th there was an absence of sun, and since then we have had some very hot days, and almost daily I have had to cut injured berries away from the bunches until yesterday, when it seemed to have stopped, as the fruit is now changing colour. Madresfield Court and Lady Downe's are the varieties that suffered most. I have had cause to fumigate the house within the period mentioned, as some thrips had attached to the Vines from some Azaleas that were standing under them, but I have not the least idea that the smoke caused the berries to go bad. The first place I should expect to see injury from fumigating would be in the leaves, and these remain quite perfect. From close observation I noticed that the injury was done through the hottest part of the day.—R. M.

I HAVING had cause to fumigate a vinery, which is almost devoted to the above named Grape, to arrest a little green fly, and as it was done within a few days of the date upon which those of “A Hampshire Gardener's” were fumigated, I thought the result of our smoking may in some degree help to solve the question as to whether the misfortune referred to on page 511 was brought on by tobacco smoke. My experience justifies me in saying, that where ordinary precaution is taken in smoking vineries no injury will occur to Madresfield Court any more than to other kinds of Grapes. I am very sorry to learn of your correspondent's mishap, but am afraid the damage has been caused by excessive evaporation.—A. W.

THE HELIOTROPE AS A WINTER-FLOWERING PLANT.

THE fragrant flowers of this plant are at all times in request, and a few sprigs with a base of Maidenhair Fern are much appreciated in the boudoir and drawing room, also for bouquets. In order to have a supply of this favourite flower through the winter and spring months, and indeed all the year round, cuttings should be inserted at once, and be placed into 3-inch pots as soon as they are rooted in a compost of three parts loam and one of sweet leaf mould, with a sprinkling of sharp sand added. Arrange them in a frame or pit near the glass, and keep them close for a day or two until the roots have taken to the soil, after which they should have abundance of air until the approach of frost, when they should be placed in an intermediate house along the edge of the stages. Stop the plants two or three times during the interval from potting them, and putting them into heat towards the end of September or early in October next.

In the spring a few dozens of the strongest plants (more or less, according to circumstances) may be shifted into 6-inch pots, the shoots having been previously shortened back a little to make them bushy. In this size pot, with frequent stopping the shoots and feeding at the roots, the plants will make shrubby little specimens by the autumn ; and the plants having been stood out of doors during the months of June, July, August, and the best part of September, the wood will therefore be well ripened before being subjected to gentle forcing a few weeks later on. If larger plants are desired they should be shifted into suitable sized pots,

as they require more room at the roots, and the plants be grown as standards, pyramids, bushes, or trained to a flat upright trellis rounded on the top. For large plants the latter is the most convenient mode of training, inasmuch as the plants can be placed in better positions: against the glass at the ends of the houses, where they will not only look well but flower well. We have a few plants of this description in 14-inch pots occupying similar positions, which, together with several miniature bushes and a few scores of plants in 3-inch pots of this agreeably scented plant on the side stages and shelves in intermediate houses, yielded us a good return during the autumn, winter, and spring months for the care bestowed upon them. We give our plants liquid manure at the roots a few times in the week, which has a good effect upon them. Until lately there was a plant of *Heliotrope* here growing in a border under the flagged pathway and staging, and trained against the back wall of an old lean-to house, which was said to be about "three score and ten" years old at the time of its death through old age.—H. W. WARD.

INDIAN EXPERIENCES.

(Continued from page 420.)

A FEW remarks on the artificial supply of water to the roots of the Coffee tree during seasons of protracted drought for the purpose of forcing out the blossom and setting the fruit may not be uninteresting. I have already mentioned that estates on Bamboo land in the Wynaad district lying far to the east or on the confines of the Mysore territory frequently suffered to a very great extent from want of moisture and the long-delayed spring showers. To such an extent indeed did this climatic privation extend that a total loss of crop over many hundred acres was frequently the result. A magnificent show of blossom bud in the early part of the season, giving promise of an abundant crop, would not unfrequently end in no crop at all, and so the planter had to toil on for another year. Without the aid of precedents to guide him in his calling, the planter had, in a great measure, to grope his way in the dark with regard to all matters of cultivation, or if he had any guide at all it was merely that of his neighbours' opinion, derived not from any act or acts of intelligent experiment or course of study, but simply opinions handed down from one generation of planters to another, and how derived no one knew nor cared. Among other beliefs obtaining was the one that irrigation was of no use, in fact was positively injurious when applied to Coffee, and was much better left alone. If a young planter happened to state that he intended some day to try the experiment he was put down immediately as a person that should be kept under restraint; the consequence was that for many years planters in these arid districts who had invested their money were content to abide by the opinion of the majority, and go on toiling year by year, reaping crops in abundance of fever and disappointment, but very little Coffee.

The first time I saw the blossom of the Coffee tree was in the height of the dry season on an adjoining estate to the one I had charge of. The proprietor had cut a drain or water lead from a ravine in the jungle through his Coffee fields to his pulping and curing works, winding along the hillsides all the way. The water had percolated through the loose soil on the under side of the drain to a distance of one line of Coffee trees, reaching their roots and bringing out a splendid blossom throughout the whole length of this artificial channel. I shall ever remember that sight, the surpassing beauty of the rolls of white blossom highly scented and intermixed with the bright and polished green leaves when all else around was drooping and seemingly perishing in the hot midday sun. Few shrubs can, I imagine, rival the Coffee in beauty when seen in full flower. By the way, I think it a great pity that it is not more frequently grown as an ornamental plant in England. It is very easily raised from seed, and as easily grown afterwards; it is always beautiful in flower or otherwise, and would amply repay any little care bestowed on it. The proprietor of the estate in question on seeing so many of his trees in full blossom greatly deplored the circumstance, and almost seemed to think that the trees would be ruined in consequence; but the grounds for his opinion he failed to give, except that the bringing out of the blossom in this unnatural way was sure to weaken the tree and engender disease. As time went on, and crops and planters' patience began seriously to lessen, opinions began gradually to change with regard to irrigation, until at last someone fairly broke the ice, and towards the end of an exceptionally parching season set to work, cut drains, and utilised every available drop of water on his plantation for the purpose of forcing out the blossom on at least part of his estate and setting his crop. This was done with the most happy results. A heavy crop on the irrigated portion of the property was secured, whilst the other portions shared the too usual fate of total failure or only partial crop. The neighbouring planters were not slow to take the hint, and the following year every stream in the district available was made use of, and water was brought in channels from the neighbouring jungles, in some instances at great expense. Existing estates, however, were so situated as to preclude the possibility of their whole area being irrigated, so planters had to be content to water as large an area as possible, and the remainder had to take its chance of the spring showers, come when they might. In course of time as land was required for the cultivation of Coffee, great pains was taken to select blocks only which could be brought under the influence of irrigation either by streams existing on the particular block selected, or if it were so situated so as to be capable of being watered by some distant stream or river. There can be no doubt that in India, to allow the

Coffee plant to pass through a succession of long seasons of drought is trying to the plant in the extreme, and superinduces decay, so that any assistance in the shape of water at the right period not only secured the crop of berries, but kept the trees in health and vigour also. One drawback was that as the blossoms, owing to the general limited supply of water on most estates, could only be brought out in small patches at a time with short intervals between, so that the crop did not ripen equally, and consequently gathering was a matter of greater expense than when the blossom was brought out by natural showers. When these came in due season every pip of bloom on an estate expanded in one day and the crop ripened in the same manner, rendering the harvesting of crop a very simple matter in this respect. South Indian planters had a great advantage over their brethren of Ceylon. In that island, I believe, rain falls more or less during every month of the year, bringing out small patches of blossom, and of course the fruit will ripen accordingly, which causes great trouble and inconvenience, especially during the heavy south-west monsoon rains.

In the Wynaad irrigation was undertaken something after the following fashion:—Main channels were cut from the streams at regular intervals over the estate, and from these, when the time arrived, small runnels were led to the roots of the trees. In the first instance—viz., the cutting of the main channels, a good deal of expense was frequently incurred, but the actual work of watering the shrubs was not an expensive one. The Mysore cooly was usually very expert at this work, and it was quite wonderful to see what a number of trees he could get over in a day, and quite as marvellous to see with what rapidity the trees sprang into leaf and flower in that tropical climate through the influence of a very little quantity of the life-restoring element. The mamoty or large hoe was alone used, but it is the tool used by the Mysore peasant for ages, and one he can use with great dexterity as a spade in digging the soil, as an axe in cutting roots, and as a shovel in filling baskets with earth, and in heaping it or throwing it to a distance. With the corner of this hoe he would form small channels from the main drain to the roots of the trees very quickly and cleverly, the water following him as the channel was formed, and he had generally a very good idea when a tree had sufficient to do the work required of it. It was light work too, and on that account one the Mysore labourer dearly loved. Given light work where some dexterity was necessary in its performance, and there was little fear of his shirking his task; but if the work was heavy and uninteresting sleep usually overtook him long ere his task was completed.

By irrigation, even on the limited scale described, much crop and consequently money was saved to the planter, and one cannot help thinking that had the work been systematically undertaken at a much earlier stage of the Coffee planting industry in South India such industry would have been established on a firmer and more secure basis, and its existence been of much greater permanency.

With plantations in perfect order and crowded with blossom bud waiting the advent of a single shower to expand it into rare beauty and profit, planters had to wait patiently through the long hot dreary months, anxiously hoping that the one shower would fall before the blossom bud was entirely ruined; but this hope was too often deferred, and the heart grew sick indeed as day by day, week by week, and month by month the sun shone on in a brazen sky, giving no sign of the slightest moisture till too late, or the blossom bud had become like so many black specks, dropping and sanding the parched earth with every puff of wind. That this had a most depressing effect upon the planter, after undergoing numerous privations, and expending all his energies in bringing his estate into a high state of cultivation, can be easily imagined, and in many cases led to very disastrous results.

It was always an open secret that the Government of India, although not actually prohibiting Europeans settling in the country for agricultural purposes, at the same time almost invariably showed a passive unconcern as to their interests and success, and certainly did not extend to them that assistance and encouragement their energy and courage deserved. Anything to help the planter in his calling, or to facilitate the carriage of his crops to the place of shipment, or that of material of various kinds requisite for the cultivation of his property, had generally to be wrung from the Madras Government through the medium of the Planters' Association and other bodies, which was, of course, a most unsatisfactory state of things. The result of all this lukewarm action on the part of the Government was the waste of tens of thousands of pounds of English capital; the destruction of thousands of acres of magnificent forest; the permanent ruin of as many acres of splendid land, only now capable of supporting *Lantana* and other thorny and pestilential scrub. At the dawn of Coffee planting in the Wynaad the country was a magnificent one. An unbroken line of forest clothed the Ghaut range on the western side, falling away into an equally unbroken sea of beautiful Bamboo jungle on the east, covering land that had been untouched for ages, and stocked with wild beasts in great numbers, from the huge elephant down to the tiny mouse, deer, and hare, and teeming with birds of gorgeous and varied plumage.

Better by far had the Government, at the outset, when it was proved by some adventurous Englishman that the Coffee bean could be produced in the district of excellent quality, refused permission to Englishmen and native alike to destroy the forest for the purpose of Coffee planting till such time as all reliable and trustworthy information had been gained with reference to the capabilities of the district by the investigations of capable and responsible agents for the guidance of the planter in all his future operations. A foundation might thus have been laid for instituting and upholding, on a permanent basis, of a

system of husbandry well calculated to be of great benefit both to the individual and the State; instead of which the Government unquestionably encouraged, by apathetic neglect, a wasteful system of agriculture, disastrous alike to the district, to the English and native planters, and to the Government of the Presidency itself.

I can conceive of no more interesting, and perhaps profitable undertaking, than if the Government of Madras had at the commencement of the Coffee industry established an experimental garden in some suitable part of the district under the supervision of a competent English gardener capable of conducting experiments with a view to discovering the best and most permanent mode to be adopted in the cultivation of the berry, the demonstrating of the advantages of conservation of the many natural advantages the district possessed, as well as conducting other experiments outside Coffee planting, which would doubtless have been of the highest interest both in a horticultural and botanical point of view. The opportunity was lost, and in consequence a magnificent district of Malabar, rich in splendid soil and numberless natural products, has been partially if not wholly ruined. It will take many ages before the soil can be renewed that has been washed down to the sea in thousands of tons, or the forests be renewed on the Ghaut ranges. Vast tracts whereon once stood magnificent jungle containing trees of vast size and great value, then clothed with fields of beautiful Coffee trees, are now only covered with impenetrable thickets of thorny scrub, bearing silent testimony to the mistaken and wasteful policy of the Government.

My next paper is the last I shall devote to my remarks on this district of Malabar. I left it about the year 1867 to reside on the Neilgherry hills, but returning to the Wynaad in 1871 I found matters greatly altered. Leaf disease had made its appearance, and was steadily pursuing its course of destruction; but of this I shall have more to say in my concluding paper on the Wynaad. I will only say here that I have frequently noticed what I used to suppose was a distinct species of Coffee, which seemed to escape the leaf disease to a considerable extent. Every estate had a small proportion of this sort. It grew more stiff and erect than the ordinary type, had much narrower leaves, and flowered twice a year, the first time just after the south-west monsoon, and the second when rain fell or together with the other kind. The berry was more oblong, and the plant seemed to withstand the long drought much better than the ordinary kind. The nature of the climate and the planter's duties preclude the possibility of his undertaking experiments in the way of hybridising or selection of a nature likely to prove of any real utility in the way of producing new varieties likely to prove more hardy and better adapted to the climate. It was therefore all the more to be regretted that the Government did not come to his assistance, and instead of devoting all their attention in horticultural matters to the gardens situated in such delightful climates as Ootacamund and Bangalore, they did not divide it between them and such deeply interesting and splendid districts as Wynaad and Coorg.—PLANTER.

(To be continued.)

VINES AND BORDERS.

SOIL and climate vary in different latitudes, or in the same parallel there is so much diversity of strata and of surface as to necessitate a different routine of practice, which has given rise to diversity of opinion on the part of cultivators, and caused no little perplexity to beginners in Grape cultivation. There is not any questioning of authorities in propounding opinions which verified by practice run counter to their expositions, for the simple reason that good as a certain system may be in a certain locality and generally applicable to most, it does not meet the requirements of cultivators in some, it may be peculiar soils and locations, so that much is necessarily left to the judgment of cultivators. With all deference therefore to the authorities, I consider much must be left to the individual cultivator, as none are so near disaster and failure as those who follow authorities with a blind confidence without the exercise of judgment in the measure of their application to the exigencies of their case.

The vagaries of Grapes are proverbial. Some varieties do remarkably well with a certain cultivator in a particular locality, but he fails to do anything with other sorts with which a neighbour may be very successful.

"*Experientia docet*" has favoured us (page 389) with a remarkable article on "*Unorthodox Vine Pruning*," in which he mentions my having elaborately reviewed a previous article of his. At the onset your correspondent must understand that in the article on page 173, August 26th, 1866, he attributed better results in Grape growing to long pruning only, and in his second (page 389 of the current volume) he takes the credit of a dressing of lime—"an extraordinary one"—at least 2 inches thick, and that "with the fresh soil and manure dressing on the strip of border" (6 feet) "had a good effect." This is clenching an argument by an argument of another character. They are very different. It was long pruning (page 173, August 26th, 1866), now (page 389, May 19th, 1887), addenda liming and border renovation, which amounts to this, that long pruning or extension prompts increased and corresponding root-action, liming liberates inert matter or converts it into humus; it is taken up and nitrogenised in the Vine by the increased power of the leaves elaboration and assimilation, stouter wood, plumper eyes, and more stored-up sap is deposited—the wood in fact is mineralised—giving solidity alike by the lime and the increased food supplies resulting from its application. Then there is the fuller exposure of the foliage to light and air, inasmuch as with extension there are fewer parts—two or more shoots are converted or turned into one, so that we get a shoot the

strength of two or more, and concentrate by the enlarged foliage more of the assimilated matter in one bud than was effected on the old lines or small leaves on four. By "the fresh soil and manure" we get the good effect through encouraging fresh (especially if the dressing extended up to the collar of the Vines, as I presume it did) rootlets, and the consequence is that the Vines are to all intents and purposes in a renovated border. Who can wonder that Mr. T. W. Sanders attributed most of the rejuvenated condition of the Vines at The Firs to the lime? "*Experientia docet*" admits that the lime with the fresh soil and manure dressing had a good effect, but he falls a long way short of the fact he sought to establish by his first communication. If extension be essential, how is it that so many Vines bear excellent crops on the restricted system? Our friend's long pruning owes its potency to the regard had to the roots, but that is foreign to the issue raised by his first communication. In that it was a question of rejuvenating Vines by means of the foliage alone, there not being in many cases means of access or consent to renovating the borders, but he now tells us to "by all means improve the roots of unfruitful Vines whenever that is possible, and when active fibres are induced to form freely and abundantly in firm soil near the surface of the border the character of the foliage and wood will soon be changed," which is the practice of all successful Grape growers from time immemorial; and is it not that which caused the improved condition of the Vines named by your correspondent? Rejuvenation surely is not effected by extending the Vines whilst the feeders—"the roots of which are practically beyond control" in cold wet borders away from the influence of the atmosphere. Will the extension cause the Vines to root nearer the surface? It will cause them to make longer growth, more foliage, and the buds will correspond; but what of the wood ripening? Are the bunches not loose, bad setters, having stoneless berries? Do they not shank? Are the Grapes not deficient in colour and finish? Who would rely on Grapes so grown to keep? It is extension; then it is getting the roots to the surface, and, lastly, avoiding overcrowding. The fact is, get a proper medium for the roots, and good management will be rewarded by abundant crops of useful Grapes. The extension is after all only another name for keeping the foliage duly exposed to light and air, so that it can properly assimilate the food transmitted to it by the roots. It is thorough solidification of the growth as made—stout (two or more shoots in one, through the increased aliment and power of elaboration and assimilation), short-joint wood, thick leathery foliage, full well-fed buds that afford the most satisfactory crops of Grapes.

The case of the Vines at The Firs contradicts rather than proves your correspondent's argument of Vines being renovated by extension pure and simple. The roots were not beyond the influence of lime and of fresh soil and manure applied to the surface—they were not in any sense beyond control. If our friend thinks extension is any remedy for Vines that from having the roots beyond control in a border that from being cold and wet is unsuited to them as a rooting medium, I may tell him that he is mistaken, and that nothing short of fresh soil and manure at the surface so as to encourage fresh roots from the collar will avail in rejuvenating the Vines and getting them into a satisfactory fruiting condition. The extension I admit will promote root-action, but without the stimulus of fresh soil and manure to the surface it will only aggravate the evils of grossness, long-jointed wood, imperfectly developed buds, unripened wood, a bad setting, loose bunches, mildewed, rusted, shanked, bad finished, and unwholesome crop of fruit. If, on the other hand, the Vines are weak, the soil not being an unfavourable rooting area, then another complexion is given to your correspondent's case. The extension and the longer pruning, with the advantages of increased space for the foliage, will effect wonders, making just all the difference between strawy and cane-like wood, between a miserable crop of small bunches of priceless fruit and a full and good one of well-finished and refreshing Grapes.

I began with the full intention of having something to say about lime and other inorganic substances in respect of Vines, but as I have gone so far without alluding thereto, it will perhaps be best to reserve that for another occasion. In the meantime allow me to inform your correspondent of the strong impression he has given me of the great importance of surface roots, and of inert matter rendered active by an application of lime. The first is highly suggestive, pointing as it does to the unimportance of borders being made nearly so deep as they are on the orthodox stem, and of most soils (only secure an ameliorated surface with water freed from the subsoil) being capable of Grape production.—G. ABBEY.

LEEDS SHOW.

JUNE 21ST, 22ND, 23RD, AND 24TH.

THE annual Exhibition took place on the above dates in splendid weather. We are sorry to have to record the fact that the efforts of the Committee to provide a first-class Show for Leeds and district have not met with the support they merited, and it will now be for them to consider whether they are justified in carrying on the Show. For years they have struggled manfully against innumerable difficulties, hoping for outside support, and this year the Fates seemed likely to favour them. The weather was all that could be desired, a beautifully arranged Show had been brought together, and it only needed the presence of the public to ensure a great success; but once more the hopes of the Committee were doomed to disappointment, as the attendance on each of the four days was meagre in the extreme. That such a Society as this should collapse would be nothing short of a disgrace to the town, and it is to be hoped that the wealthy inhabitants will come forward and support the Committee in their praiseworthy efforts to make the Society a permanent institution.

In the class for twelve stove and greenhouse plants, not less than six in flower, Mr. E. H. Letts, gardener to the Earl of Zetland, Aske Hall, Richmond, was easily first with grand examples of *Stevensonia grandifolia*, *Coenocrops excelsa*, *Cycas circinalis*, *Kentia Belmoreana*, *Cordylina indivisa*, *Croton Johannis*, splendidly coloured; *Pimelea decussata*, 5 ft. through, full of flower but slightly past its best; *Aphelaxis macrantha* purpurea, *Azalea*, *Ericas* coccinea minor and *ventricosa* Bothwelliana, and *Fixera Williamsi*. Mr. E. Adams, Swallow, Newcastle-upon-Tyne (gardener, Mr. Taylor), was a good second with large healthy plants of *Kentia Belmoreana*, *Dasyllirion acrotrichum*, a *Phoenix*, and two others in foliage plants. His best flowering plants were *Statice profusa* and *Phœnocomia prolifera* Barnesi. Mr. J. W. Frankland, gardener to Jno. Barran, Esq., M.P., was third with very creditable plants, the best of which were *Gloriosa superba* good, *Genetyllis* (*Hedera*) *fuchsoides*, *Cycas revoluta*, and *Latania borbonica*.

In the class for six stove and greenhouse plants were to be found some of the finest examples in the Exhibition. The first prize plants were all marvellous examples of good cultivation. Mr. Letts was again first with *Clodendron Balfourianum*, *Phœnocomia prolifera* Barnesi, 5 feet across, splendidly flowered and coloured; *Pimelea diosmæfolia*, very healthy and fine; a splendid plant of *Anthurium Schertzerianum*, with large, bright green, leathery leaves, and large brilliant scarlet spathes; *Erica Massoni* major in fine condition, and *E. tricolor superba*. Mr. Adams was a very good second with a large and healthy *Phœnocomia*, a good *Statice profusa*, three *Ericas*, and a small plant of *Stephanotis floribunda*. Mr. W. Tuke, gardener to Geo. Gelder, Esq., Headingley, was a very close third with *Bougainvillea glabra*, *Stephanotis floribunda*, *Anthurium Schertzerianum*, two *Heats*, and a red *Azalea*, all in admirable condition. This was an exceedingly good class. In single specimens Mr. R. Simpson, Selby, was first with a splendidly flowered plant of *Hydrangea* Thomas Hogg; second, Mr. Tuke; third, Mr. J. Brown, South Milford.

Groups, once the strongest feature of the Leeds Shows, were this year few in number and not up to the usual standard in quality. For the 300 square feet group, Messrs. R. Simpson and J. W. Frankland competed, and the awards were given in the order named. The first-prize group was a very light and pretty arrangement, but rather overdone with a number of plants of White Variegated Maple. The style adopted was somewhat original, the most prominent plant being *Dracæa australis* flanked by four graceful Palms, the intervening spaces being filled with a variety of plants very suitable for the purpose, the whole rendering a very pleasing combination. Mr. Frankland's group was richly coloured, but somewhat heavier than the foregoing. Had this exhibitor had a more graceful centre plant in place of the *Phoenix sylvestris* used, and one or two plants of too lumpy a character removed, it is quite possible the Judge's decision might have been reversed. In the smaller groups (150 square feet) those two old competitors, Messrs. Wright and Tuke, once more met. For some years past the keenest struggle for supremacy has existed between the exhibitors named, and with varying success, but on this occasion Mr. Wright was placed first with a very neat and well-arranged lot of plants. The colours were admirably blended, and on a bed of beautifully fresh Maidenhair Fern had a charming effect. Mr. Tuke was a capital second, only losing by a few points. In this group were some beautifully fresh and extremely elegant plants, but the outer margin did not possess such a complete finish as that of the first-prize group.

Orchids were fairly well represented. For six distinct varieties, C. Y. Broadwood, Esq., Acorn, York, was placed first. In this collection was a good *Odontoglossum vexillarium* and *Lælia purpurata*, *Cattleya Mossæ*, *Warneri*, and *Mendeli*, and a pan of *Cypripedium barbatum*. Mr. Frankland was second, having *Odontoglossum citrosum* with ten good spikes, *Lælia purpurata*, and *Anguloa Clowesi*. For three Orchids Messrs. Broadwood and Wright divided the first and second prizes. Mr. Broadwood was also first for single specimen Orchid, and Mr. Letts was second.

For six stove and greenhouse Ferns, Mr. Frankland was first for bright, healthy, medium-sized plants. Mr. Wright being second with larger but somewhat stale plants. In this collection was a good *Gleichenia Mendeli*. Third, Mr. R. Simpson. Mr. Wright was first for three Ferns, and Mr. Eastwood, gardener to Mrs. Tetley, Westwood, was placed second. Three collections of British Ferns were staged, all in admirable condition. First, Mr. Goodchild, gardener to Mrs. Naylor, Potternewton. Second, Messrs. Pybus & Son, Monkton Moor, Ripon. Third, Mr. Simpson.

Roses were shown in splendid condition by Messrs. Pybus, whose exhibits were far in advance of the others. They were first for twelve, six, and single specimens. The other prizewinners in these classes were Messrs. Cross (Meanwood), Eastwood, Brown, Wright, and Miss Steward (York). The competition in Pelargoniums led between Mr. Eastwood and Miss Steward. For twelve and six the prizes were given in the order named.

For six Zonal Pelargoniums, Messrs. Pybus was first with large, well-flowered plants of good varieties, followed very closely by Mr. Eastwood, and Miss Steward was third. Mr. Eastwood was also first for six doubles, Mr. Brown being second, and in the class for six Tricolors or Bronzes Messrs. Pybus were first and Mr. Simpson second. Only two collections of *Fuchsias* were staged, Mr. Frankland being first, and Mr. Eastwood second. *Gloxinias* were not as well shown as usual, Mr. W. J. Dixon, Alton Nurseries, Headingley, being placed first, and Miss Steward second. Table plants were not very numerous, the prizetakers being Messrs. Adams, Frankland, and Wright.

For group of natural flowers in vase four competed, but with the exception of that shown by Mr. Wright, which gained the first prize, call for no special comment. Messrs. Perkins & Sons, Coventry, were a long way in front with bridal and ball bouquets, the other successful competitors being Messrs. Wright and Frankland. Considering the very unfavourable nature of the season cut Roses were remarkably well shown. For thirty-six distinct varieties, Mr. Hy. May, Hope Nurseries, Bedale, was first, Mr. W. Boston, Carthorpe, Bedale, being second, and Mr. Eastwood third; and for eighteen distinct the same order was maintained in the award. Other successful competitors in the Rose classes were Miss Steward, Messrs. Brown and Hutchinsor. Mr. A. Halliwell, Briarhouse, was first for bunches of stove and greenhouse blooms, and Mr. Tuke second. Hardy herbaceous

and perennials made a gallant display. Mr. S. Hartley, Headingley, being a good first; Mr. Dixon, second; and Mrs. Naylor, third.

Fruit was, on the whole, well represented; some of the Grapes, however, required two or three weeks more time to finish off properly. In the premier class for six varieties of fruits, Mr. Edmonds, gardener to the Duke of St. Albans, Bestwood Lodge, Notts, was well to the front with Queen Pine, Black Hamburg and Buckland Sweetwater Grapes, Royal George Peaches, Lord Napier Nectarines, and Luscious and Melding Melon, all in fine condition. Mr. McIndoe, gardener to Sir J. W. Pease, Bart., M.P., was second, and R. N. C. Neville, Esq., Grantham, third. Mr. Edmonds was also first for four varieties, with duplicates of some of the varieties named. Mr. Davies, gardener to the Hon. Mrs. Maynell Ingram, being second with Madresfield Court Grape, good in bunch and fine in berry, but not quite up in colour; Royal George Peaches, Longleaf Perfection Melon, and Brown Turkey Figs. A. Wilson, Esq., Hull, was third. Mr. H. Gill, Boston Spa, was first for black Grapes with magnificent examples of Black Hamburg, Mr. Edmonds being a good second with the same variety, and Mr. McIndoe third. In white Grapes the positions were reversed, Mr. Edmonds being first and Mr. Gill second, while for the heaviest bunch the order was—first, Mr. Edmonds; second, Mr. McIndoe; third, Mr. Gill. Peaches and Nectarines were excellent. For Peaches Mr. Townsend, gardener to Hon. R. C.



Fig. 37.—*Onosma taurica*.

Parsons, was first for large finely coloured fruit of Early Grosse M'gaonne, Mr. Thompson was a very close second with Royal George. In the remaining classes for fruits the above named exhibitors divided the prizes, and P. Thellusson, Esq., A. Halliwell, and Frankland were also successful. Messrs. Sutton & Sons, Reading, offered prizes for Cucumbers Purley Park Hero or Sutton's Improved Telegraph, and Mr. Brown was first, and Mr. Eastwood second.

We must not omit to mention a splendid collection of Clematis from the celebrated firm of Messrs. R. Smith & Co., Worcester, also a charming display of Orchids, chiefly *Odontoglossa*, *Cattleyas*, *Dendrobies*, &c., from Mr. J. Charlesworth, Heaton, Bradford. Messrs. Wood & Sons, Wood Green, had a stand containing examples of the various specialties in manures, composts, &c., for which they are so well known, and they gave a silver medal for the specimen Rose above mentioned.

Mr. R. Featherstone, St. Anne's Nursery, Kirkstall, contributed a large number of plants not for competition, and these were tastefully disposed in groups round the sides of the tent in the gardenesque style, and were greatly admired.

ONOSMA TAURICA.

THIS is one of those plants about which we hear cultivators say it is no use trying it. The first severe winter either kills it or cripples it as to make it an eyesore in a collection. The truth of this, however, to a large extent depends upon the ingenuity of the grower, and also upon the means at his command. All plants, as we know, grow best when we give them the positions most suitable to their requirements; and although the *Onosma* is perhaps more fastidious than the majority, its

culture we have found to be of the easiest when we happen to hit upon the suitable spot. It is no exception to the other Borageworts of this class, and will not stand damp or stagnant moisture at any season, especially during winter. This is just the time when they are generally lost, and all because care has not been taken to keep them comparatively dry during this season. Of five plants put out three years ago only one has suffered, and this in the neighbourhood of London, where the fogs, &c., are most destructive to plant life. One of those left is over 2 feet in diameter, and the others are in excellent health, though not so robust. We choose the highest and driest positions we could find fully exposed to sun; and to insure thorough drainage built up small rocky mounds a foot or so high, and planted on the top.

In this way we have had one of the grandest displays of large glistening golden flowers we have ever seen, coming at a time, too, when flowers, especially this season, were comparatively scarce, and continuing until now in full beauty. It is an excellent plant for cutting; the blooms last a considerable time in water, and its charming drooping habit, well represented in the accompanying figure, gives it quite a unique character among its fellows. The effect of a mound covered with its large clusters of gold and curiously starry haired leaves is very imposing. We make no choice of soil, and our plants do well in ordinary garden ground, as well as brick and lime rubble. We give plenty of water during the growing season, and cover with large squares of glass from October until the beginning of March.

It rarely, if ever, ripens seed, but is easily propagated by cuttings, taking them off in autumn with a heel, and keeping them in a dry pit where frost is excluded. It is a native of open hills in Tauria, as well as on the mountains of the Caspian Caucasus. A new one has been introduced lately, and that has flowered in the rockery at Kew under the name of *Onosma bracteata*. It belongs to the Himalayas, and is found on rocks at elevations of 8000 to 9000 feet. It has flowers almost as large as *O. taurica*, but instead of golden are deep crimson, and extremely striking and effective in large groups. It appears to require much the same treatment as *O. taurica*.—D.

ON TULIPS.

[By MR. FOLMAN YOOY, of Haarlem (Holland). Read at a meeting of the Horticultural Club, June 14th, 1887.]

(Continued from page 515.)

THE late Tulips (also called fancy Tulips—*Tulipes d'Amateurs*) is the class which has created the greatest and most important sensation during the period that Tulips have been introduced into the floricultural world, and it is this class which has had ever since its introduction most of the ambition and love of florists and fanciers. This class has received for more than 200 years all the care and attention that could possibly be bestowed upon a plant, not only by the Dutch florists, but by every skilled gardener throughout the civilised world.

The *Tulipa Gesneriana*, brilliant scarlet with black centre, is probably the Mother Tulip from which all the many hundreds of different varieties have originated in almost every shade of colour from pure white to the darkest crimson. This is an importation from Asia Minor, the Caucasus, Calabria, and Central Italy. Conrad Gesner, a Swiss naturalist, in whose honour it was named, mentioned this Tulip first, and published a description of the same, accompanied by a drawing, in 1559. This gentleman obtained it first in a garden at Augsburg, where it had been grown from seed brought there from Constantinople. It was first flowered in England by Mr. James Garres, an apothecary in 1577. Of this class of single late Tulips there is almost an endless variety. I must also mention that the amateurs and Tulip fanciers in England have also contributed largely during the last eighty years to the very great improvements among the fancy Tulips. Notwithstanding the mania of former days (of which I wish to speak later on) has safely passed over, I at present keep over 1800 varieties of this splendid flower. When I was a young man, nineteen to twenty years old, I was apprenticed with the late Mr. Henry Groom, at that time a nurseryman in Walworth, which gentleman used to keep a most beautiful collection of Tulips of English raising, of which he was in the habit of opening a private exhibit on every year, to which the nobility and gentry residing in or about London were invited by private cards, and which many thousands of ladies and gentlemen came to see and admire.

The character of a good Tulip consists in the novelty of the sort and in its peculiar marking of colours, either feathered or blotched, with a pureness at its interior base. The ground colour should be clear and distinct, whether white or yellow. The petals should be of a firm substance, not withering soon by the action of the sun, but keeping their true colouring unwithered for at least ten to fourteen days. These late or fancy Tulips which have been so much admired by many generations, have been grown from seed by thousands, and the result of this has been the acquisition of many superb varieties, at first in Holland and Belgium and later on also in England. There is a singularity in Tulips which belongs to no other flower, and which, as experience shows, affords an extraordinary inducement to lovers of flowers for their cultivation and improvement. The seedlings generally when they first bloom produce flowers without any stripes or markings, but with a yellow base, the upright portion of the petals being self-coloured brown, red, purple, scarlet, or rose. In this state, when they have been grown for years without variation, they are called breeders or mother Tulips. These are planted every year until they break into stripes, when if the markings are fine or different from any one known they receive names, and are taken up in the existing collections. It is often so many years before they break, and the multiplication in the breeder state is so rapid, that the border soon becomes filled with this self-coloured variety. Each Tulip grower who has broken seedlings claims, and has a perfect right, to give it a name; but some confusion is naturally brought on, because of the fact that different names have been given to those that have broken almost exactly alike. In a bed of a hundred seedlings it is not probable that any two will be very nearly alike in their markings, which uncertainty adds greatly to the charms of Tulip cultivation. The hope of obtaining

something new in the markings and pencilling is a sufficient stimulant for the enthusiast to persevere in his labour of love until he has found one quite worthy of a name. Another singular feature in the Tulips is that after it breaks it ever remains the same, and never returns to its self colour again.

The show or fancy Tulips are divided into three classes:—

1st. Byblömen or Violets, such as have a white ground variegated with purple or violet, the edges well feathered, the petals erect, and the whole forming a perfect cup.

2nd. Bizarres having a yellow ground variegated with rose, scarlet, purple, or violet.

3rd. Roses with white ground colour variegated with rosy red, pink, or soft rose.

The properties of a good Tulip flower are as follows:—

1st. The cup should form, when quite expanded, from half to a third of a round ball. To do this the petals must be six in number, broad at the ends, smooth at the edges, and the divisions between the petals must scarcely show an indentation.

2nd. The three inner petals should set closely to the three outer ones, and the whole should be broad enough to allow of the fullest expansion without quartering, as it is called, or exhibiting any vacancy between the petals.

3d. The petals should be thick, smooth, and stiff, and keep their form well.

4th. The ground colour should be clear and distinct, whether white or yellow. The least stain, even at the lower end of the petals, renders a Tulip of less value.

5th. Whatever be the disposition of colours or marks upon a Tulip, all the six petals should be marked alike, and be therefore perfectly uniform.

6th. The feathered flowers should have an even close feathering all round, and whether narrow or wide, light or heavy, should reach far enough round the petals to form, when expanded, an unbroken edging.

7th. If the flower has any marking besides the feathering at the edge it should be a bold mark down to the centre, but not reaching the bottom of the cup. This mark must be similar in all the six petals.

8th. Flowers not feathered, and with the flame only, must have no marks on the edge of the flowers. None of the colours must break to the edge. The colour may be disposed in any form so that it be perfectly uniform in all the petals, and does not go too near the bottom.

9th. The colour, whatever it may be, must be dense and decided, whether it be delicate and light or bright or dark; it must be distinct in its outline and not shaded or flushed.

10th. The height should be 18 to 36 inches. The former is right for the outside row in a bed, and the latter is right for the highest row.

11th. The purity of the whole and the brightness of the yellow should be permanent—that is to say, should stand until the petals actually fall.

After I have pointed out the pleasure and ambition which the culture and improvement of Tulips has given to so many admirers of Nature through many generations, I can hardly overlook the wonderful excitement of which this at first quiet and innocent pleasure and trade was the precursor in past ages, and I presume that some information about this extravagant trade, or rather foolish speculation, may prove agreeable and interesting to some of the members. I have endeavoured to procure every possible information on this subject, for which I have taken the trouble of searching through all the old libraries, as well in the old documents of the city of Haarlem as in those of private property, but I am sorry to say that my gatherings have not been so successful as I had expected, while it appears that very little in detail has been noted down of these remarkable times.

The best information on this subject which I have been able to find is in a little book containing three different dialogues on Flora's rise and decline, printed and published by Johannes Marshoorn, printer, residing at that time at Marckt, in Haarlem, in 1741. It appears that what has been published after that date on this subject has all been obtained from this book, which seems to have been the only source for information in this respect. The city of Haarlem was at the time I speak of very famous for the manufacture or handweaving of various goods, which were mostly intended for export to India and other foreign countries, while the weaving by steam power now in use was at that time quite unknown.

It appears that these weavers, who were well-to-do citizens, during their holidays and Sundays, and all recreation days, amused themselves and found great pleasure by growing flowers, for which purpose they possessed small gardens just outside the city, with little summer houses for shelter in rainy weather and to store away their garden tools.

The very spot on which my offices and warehouses in Haarlem now stand, and the nursery in the back of it, used to be the site of thirty of these gardens, where on a holiday these people visited each other, played at marbles, and took a great delight in the growing of flowers to their taste. Among these quiet and honourable people Tulip growing appears to have at first originated, and has gone on for several years without being much noticed; but the seedlings of Tulips, and the breaking of flowers into a variety of fine colour, gave an interesting stimulus to this sort of fancy, and brought on a little trade among them of novelties. And by the introduction now and then of more wealthy citizens among these fanciers, this trade became more and more popular, until in the year 1633, when the trade in Tulips became so extravagant that it ruined thousands of people, and which was at last so very much taken up by all classes in society that at the end of the fourth year Government found it expedient to interfere.

As to the great cause of this famous trade and wild speculation which sprang up in Holland in the year 1634 there is no publication which gives a decided answer, but it is more than probable that the great impulse to this extravagance has come from Paris, where, in the year 1632, a fashion amongst ladies sprang up among the nobility and wealthy classes of society to wear Tulip flowers of the most beautiful colours on the left side of the bosom. Tulips were at that time rather novel and scarce, and consequently very costly, which may have led to it that they were used like diamonds and other precious stones, so as to satisfy the wealthy class of people in their love for show or pomp, which has at all times been found among human society.

This fashion soon exhausting the stock of Tulips in hand sent up their value to very high prices, when tradesmen and speculators, finding

that in Haarlem the Tulip fanciers existed, endeavoured to supply their wants for this costly fashion among these growers, who thereby received a great stimulant to the trade, which soon degenerated into extravagant speculation; and as fashions, particularly of such a costly nature, never last very long, it is quite natural that two years afterwards, when the fashion had changed and Tulip flowers were no more wanted, the Tulip trade fell to the ground.

From the publication above-named I find a list of the names of the Tulips at that time known among the trade, consisting of 121 different varieties (although I certainly believe that a good many more sorts were known at that time, although not in this list). The greater portion of the sorts in this list are not in cultivation at present; but I, however, find among them six sorts still in my collection at the present day—viz., Bruid van Haarlem, Geeltroef van Leijden (red and yellow of Leiden), Generalissimo, Lac van Rhyn, Nons (wit), Somerschoon (Summer Beauty).

It appears that at the time when the greatest speculation was going on the Tulips were sold by weight, and they were handed over at very high prices, especially considering the so much higher value of money in those times.

There was in those days a committee nominated out of the florists, who assembled almost every day, and all the Tulip roots intended for sale were brought to this committee, who took the bulbs, weighed them carefully, and sold them to the visitors of the sale, of which at that time there were always a good number ready to buy according to their fancy, and at all fancy prices. The Tulips were there sold per root, but also at a certain price per Ace weight (the smallest medicinal weight, 9728 Acen, being equal to 1 lb).

In these times almost every man in all positions of life, either noblemen or tradesmen of the lowest class in society, even coachmen, letter carriers, carpenters, and weavers were then more or less actively engaged in the Tulip trade, stimulated by the heavy sums of money the bulbs so often fetched, and the apparent large profits which they brought to the lucky speculators.

In order to give you some idea as to what prices some sorts fetched at this time I may mention the following:

One bulb of Geeltroef van Leyden, weighing 515 Acen, sold first for 46 francs, or £1 and a few days later for 550 francs, or £46.

One bulb of Gouda, weighing 4 Acen, was sold at first for 20 francs, or about 32s., and two or three weeks afterwards was sold for 225 francs, or about £18.

One bulb of Admiral de Man, weighing 130 Acen, sold at first for 30s., was sold a few days later for 175 francs, or about £15.

One bulb of Generalissimo, weighing 10 Acen, first sold for about £8, was sold a few days later for £88.

One bulb of Scipion, weighing 1000 Acen, was first sold for about £6, and a few days later for £180.

One of Yellowcrown, sold at first for £2, was sold within a month for over £100.

One of Switzer, sold for £5, was sold soon after for £150.

One of White Crown, sold for £10, fetched a few days later the sum of £300.

1000 Acen of Viceroy was sold at first for £300, and a short time afterwards for £600.

1000 Acen of Cooronaerts, sold at first for £5, fetched a few days later the price of £40.

One thousand Acen of Audenae de, sold at first for 70 francs or £6, was sold a few days later for £600, and so on, the price per Ace being higher or lower according to the public favour which each individual happened to enjoy at the time.

One bulb of Sempër Augustus was sold for the sum of £176, with the special condition that the purchaser should not be allowed to sell it again without the written consent of the seller, and for ten Tulip roots in ten different sorts the sum of £1000 was offered, which the proprietor refused to accept, as he considered that to be less than the actual value.

Respecting the above-named variety, Viceroy, a most curious story is told in one of these ancient books of a Tulip fancier, who was so very anxious to get possession of this Tulip, but not having sufficient money to pay for it in full, he arranged with the seller to give him in exchange for one bulb the undernamed articles, besides a sum of silver money, also 2 tons of corn, 6 tons of Rice, four fattened bullocks, a dozen sheep, eight fattened pigs, two barrels of wine, four barrels of beer, two barrels of butter, 1000 pounds of cheese, one bed, with various wearing apparel, the whole calculated to represent £210. Another fancier exchanged the freehold property of 12 acres of land for one Tulip root, and at a public sale one morning in Haarlem, £800 was realised for only a few Tulips. A very good dwelling-house, now still standing in one of the principal streets of Haarlem, was also exchanged for one Tulip root. An inhabitant of Brussels at the time was proprietor of a small garden there, where the nature of the soil appeared to possess a particular natural power to bring seedling Tulips to break, and thus greatly to improve their value. A good many dealers in Tulips sent their seedling breeders there to be planted at a pretty high premium per season.

All sorts of Tulips were sold and re-sold day after day, always at an advanced price, which, I may say, made some people wild in their extravagant desire to gather riches. Several weavers in fairly good circumstances left off working and sold their looms for the purpose of laying out all their money and employing all their time in the trade of Tulips. During the time when the Tulip roots were in a growing state in the grounds, they could, as a matter of course, not be sold by weight, but, however, the same extravagant trade was still kept going by written contract blanks, which the tradesmen carried in their pockets ready made, and only requiring to be filled up and signed. These contracts contained an accurate stipulation of the place where the bulb sold had been planted, and the purchaser had the right to take it up when withered, but could only do so in company of the seller, to avoid fraud, while the gardens where these valuable Tulips were planted were watched day and night. A strange custom with some of these private sales seems to have been adopted—viz., when a Tulip bulb sold during winter was to be taken up in summer, both the seller and the buyer went together to the place where the bulb had been planted, and after the bulb had been taken out of the ground it was placed in a small box, which was carefully sealed, and the box in this state was kept by the seller, while the purchaser was allowed a certain time, probably fixed by contract, to

decide whether he would accept it at the price and pay for it or refuse it, when the transaction could be considered as undone; but the party thus refusing had to pay a certain per-centage for wine as penalty. It appears that several of these private sales had been effected on every curious conditions, but what little has been said of them in the way of explanation how it was done. This has been described in such obscure and incomprehensible words that it cannot be considered an explanation at all, and leaves it entirely obscure to posterity.

The most common Tulips, which in former years had been thrown away as being surplus stock and of no value, was then brought to the market of the florists and sold at high prices to the fanciers.

It may be interesting when I mention an extract of some few of the highest priced Tulips, which at that time were considered of most value:—

Admiral Leifkens	weighing 40	Acen 4100f.	or £367
Catlyn of Entschuizen ..	"	215	" 5400 " 450
Ballaert	"	599	" 1500 " 126
Brutne purper	"	329	" 2025 " 170
Bleyenburger	"	443	" 130 " 103
Brabant	"	512	" 1010 " 85
Fama	"	153	" 700 " 58
Gouda	"	177	" 3330 " 278
Grebbe	"	523	" 1485 " 124
John Catlyn	"	619	" 2160 " 180
Somerschoon (still now in cultivation)	"	363	" 1010 " 85
Viceroy	"	410	" 6700 " 553

All the other sorts in this price list offered at various prices between £5 to £200 and £300 each.

After this trade had gone on for four years a general meeting has been held of the florists on February 3, 1637, at which it appears that a change in the market took place as if suddenly the eyes of the foolish speculators had been opened. Every one of them wanted to sell, but could not find anybody to buy, and from that day the speculation fell to the ground, and in its crash brought ruin and sorrow over the whole of florists and Tulip fanciers, which must have been felt severely through all classes of society, doing considerable injury to the trade at large. I may presume that during this extraordinary time many singular occurrences have taken place, of which it might have been interesting for posterity to know the details, but as they appear not to have been noted down by anybody then living, we must content ourselves with what we know of it. Certainly it has been a most extraordinary occurrence, and shows how under a combination of political or domestic circumstances so many people can be brought to ridiculous doings, which at the end must bring ruin and sorrow over their heads.

We now come to an altogether distinct class, the so-called "Parrot Tulips," which are well worth our attention. From where they originated we cannot say for certain, but I am of opinion that they originated from a monstrous sport out of the late or fancy Tulips, among which they are occasionally found. Their curious form of flower and the very striking beauty of their showy colours may have made them worth growing in quantities.

They may be ignored by those florists who claim the right to say what is and what is not beautiful, but as I am not bound to observe the laws that regulate the form, shape, and perfect markings, I prize this class very highly on account of their singular picturesque appearance, and their large and exceedingly brilliant colours, while it is a fact that the demand for them from all quarters is very considerable indeed, and has been increasing considerably of late.

They are unequalled for groups in mixed borders or conspicuous places in front of shrubs, and they also prove very ornamental if planted in hanging baskets or other hanging ornaments.

The variety in this class is very limited, their colours ranging between deep red and pure yellow; but they are, nevertheless, beautiful and attractive, and more particularly so those of decided colours, such as Monstre cramoisi, Rubro major, Luto major, &c.

Besides the classes of Tulips which I have mentioned and described, there are some sorts which are grown and sold under the name of Botanical Tulips, because they do not quite belong to the classes I have spoken of, but which are desirable for their particular property and beauty.

Tulipa Clusiana, a small miniature Tulip; very beautiful.

" Florentina, yellow, and very sweet scented.

" Oculis solis, crimson, with dark bottom.

" Persica or Brayniana, fragrant yellow; small flower, and very dwarf and neat.

" Eichleri, orange; of recent introduction.

" Graigi, light orange, with blotched foliage; also of recent introduction.

" Haageri, red.

In the botanical works are found several more names of Tulips which are not in general cultivation, probably because they do not attract the eyes of florists by beauty or other properties.

CULTURE OF THE TULIP.—The best soil for the culture of the Tulip is a rich, rather light, well-drained sandy loam. A bed of sufficient size for planting the bulbs should be dug at least 12 or 14 inches deep. The Tulips should then be planted 4 inches apart each way, pressed deep enough to keep them in their places, and covered with mould to the depth of 3 inches on the sides of the bed, and 5 inches in the centre. This precaution is necessary that water may not stand on the bed during the winter. When the bed is planted and covered it may be left to the weather until the Tulips come up, or about March 1st. A slight protection of litter is then required, as the frost, if severe, has a tendency to check the bloom. Our climate is so variable that it will well repay the trouble or cost of covering at night and remove in the morning, in case snow for some time should not prevent this; but if the foliage is left for a long time covered up it has a tendency to draw up, and weakens the plant.

When the flowers appear and they are protected from the sun by a light canvas, the period of bloom may be kept up for three or four weeks. The colours are generally better if not shaded at all, but in that case the bloom, particularly in hot weather, would soon be over. Sometimes a single day's hot sun would completely spoil them. When the flowers begin to fade they should be cut away and removed from the bed. I must, however, here men-

tion yet what I consider a very important item, and which I know is very often overlooked in planting Tulips—viz., never plant Tulips in the same bed, or rather in the very same soil, for two or three consecutive seasons, or if such might be desirable take at least 2 feet of the old soil out of the bed and replace by fresh ground. If this is not done the Tulips will bloom more poorly every year, and at last not bloom at all. I know that very often this has been the cause of great disappointment to buyers, who blame, although erroneously, the seedsman or the grower who has supplied them.

At the conclusion of my present discussion I beg to express the hope to have given some satisfaction to the members of this Club, and if it should be considered agreeable and worth your attention, I may endeavour to continue my discussion upon other flower roots of importance, esteemed among the floriculturists, which are so much grown in Holland, and particularly at Haarlem.



HYBRID PHALÆNOPSES.

UNTIL quite recently very little progress had been made in artificially hybridising the various species of *Phalænopsis* in cultivation. Several supposed natural hybrids had, however, been described, and the characters of these forms were so clearly intermediate, that there were substantial reasons for expecting some good results from the experiments undertaken by several cultivators interested in the matter. The natural hybrids that have been described by botanical authorities are the following, with the parents:—*P. Casta* (*Schilleriana* and *amabilis*); *P. intermedia* (*rosea* and *amabilis*); *P. leucorrhoda* (*Schilleriana* and *amabilis*); *P. Sanderiana* (*amabilis* and *Schilleriana*); *P. Valentini* (*cornu-cervi* and *violacea*, and *P. Veitchiana* (*rosea* and *Schilleriana*). It is a remarkable fact that the accuracy of the conjecture with regard to one of these, *P. intermedia*, has been since proved, and there has also been a near approach to *P. leucorrhoda*.

Speaking at the Orchid Conference in 1885, Mr. Harry J. Veitch said—"Crosses between species of *Phalænopsis* have been effected by several operators, and capsules readily obtained. We only know, however, of three instances besides our own where seedlings were raised; the first by Dobbs, in 1868, in the collection of Sir John Greville Smith, at Ashton Court, near Bristol, but they were afterwards lost; then Grey, gardener to the eminent orchidologist, Mr. Corning of Albany, New York, raised some seedlings, but they, too, were afterwards lost; and, lastly, Mr. Hollington at Enfield, who has, I believe, one seedling still living. Our own experience with *Phalænopsis* dates from 1875; our first cross was between *P. grandiflora* and *P. Schilleriana*, but with that and with several succeeding crosses no results beyond the capsules were obtained. The first capsule to yield seedlings was gathered from *P. grandiflora* × *P. rosea*; a few of these are still living. Then we obtained a few from *P. amabilis* and *P. rosea*, which grew with more vigour than their elder brethren, and may not improbably flower within the next two years. Still later we obtained seedlings from *P. Schilleriana* × *P. rosea*, *P. grandiflora* × *P. Ludemanniana*, and from two or three other crosses."

Since then three of the Chelsea hybrids have flowered, and the first was that already referred to—namely, *P. intermedia*. This flowered in March, 1886, the plant having been produced from seed sown in 1882, the result of a cross between *P. amabilis* and *P. rosea*, the experiment being undertaken to test the opinion as to *P. intermedia* being really a natural hybrid. This plant was mentioned in the paper already quoted. The reader remarked that, "The plant had made three healthy leaves. It was well established in a small pot, which, to be more secure from danger, was placed upon an inverted pot that stood in a pan of water. One morning, to the great dismay of Seden, it was discovered that a slug had eaten two of the best leaves, and would, if not trapped, certainly devour the remainder. Anxious to save the treasure, the plant was watched incessantly for hours in the expectation that sooner or later the marauder would make his appearance. To induce him to do so the moss was constantly plunged in water. The repeated duckings had at length the desired effect, the culprit issued from his lurking place, and the plant was saved." It can be readily imagined after this narrow escape how eagerly the flowers were watched as they expanded, and the success of the experiment was demonstrated. It was found to be a true *P. intermedia*, a good dark variety, the sepals and petals white, the latter tinged with crimson at the base, the centre and side lobes of the lip purplish crimson, with a few dots and a yellowish crest at the base; the flowers about 2 inches in diameter, and the foliage the same as a well-grown *P. intermedia*.

When the plant was exhibited at South Kensington on April 13th last year, it attracted much attention from the orchidists present, and when placed before the Scientific Committee a botanical certificate was awarded for it.

Another interesting hybrid *Phalænopsis*, which flowered for the first time at Chelsea early this year, has been named *P. Rothschildiana* in honour of Lord Rothschild. It resulted from a cross between *P. Schilleriana* and *P. amabilis*, and presented in many points a curious resemblance to both parents. The leaves, though suggestive of *P. amabilis* in form, but have some of the dark spotting or marbling which renders the foliage of *P. Schilleriana* so handsome. The flowers have been aptly compared to those of *P. leucorrhoda* in form, the sepals creamy yellow with purplish spots at the base; the petals are round, somewhat tinted with yellow and spotted with purple, and orange in the centre. It will be noticed that the parentage was the same as that ascribed to *P. leucorrhoda*, but though the hybrid resembles it in several characters it is distinct in colouring and some minor points.

A third hybrid *Phalænopsis* raised at Chelsea is that represented in the illustration (fig. 88). This has been named *Phalænopsis Harriettæ* in honour of the daughter of the Hon. Erastus Corning, Albany, New York, and was obtained from a cross between *P. grandiflora* and *P. violacea*, the former being the seed parent, and the seed was sown in January, 1882, the first flowers being produced in May this year. The leaves are plain green, much resembling *P. grandiflora*, while the flower is more like an enlarged *P. violacea*, and it might be not inappropriately termed *P. violacea grandiflora*. The flower is nearly 3 inches in diameter, the petals about three-quarter inch across, ovate, pale creamy white, stained with purple at the base, the sepals being similar in colour and size, but rather more acute in form. The lip has relatively large purplish-crimson wings, and a prolonged acute centre of a purple hue. This neat and attractive hybrid has been added to Mr. Corning's extensive collection of Orchids, which is now one of the richest in the United States, being especially famed for the *Phalænopses* and *Cypripediums*. Of the *Phalænopses* alone it is said that he has twenty-seven species and varieties, comprising some very rare forms. *Cattleyas* and *Lælias* are also largely represented, houses being devoted to them and several other large genera. Those who have seen the collection speak in the highest terms of the skill displayed by Mr. Grey in their cultivation, the plants all being in admirable health, and comprising some very handsome specimens.

With regard to other experimenters in hybridising, it might be added that in Mr. Smee's garden at Wallington, Mr. Cummins has obtained seed pods from crosses between *Phalænopsis Ludemanniana* and *P. amabilis*, also between *P. Manni* and *P. amabilis*, but hitherto no seedlings have been raised, though there is a prospect of some being obtained shortly.—L. CASTLE.

ROYAL HORTICULTURAL SOCIETY.

JUNE 28TH.

HARDY flowers and Orchids shared the honours at this meeting as regards attractions, though the former were the more numerous, and presented a greater variety of colours. Messrs. T. S. Ware, Paul & Son, Barr and Son, and Kew & Son were large exhibitors of hardy flowers, the Orchids coming from amateurs, the handsome collection from Sir Trevor Lawrence, Bart., M.P., being foremost in all points.

FRUIT COMMITTEE.—Present: Harry J. Veitch, Esq., in the chair, and Messrs. John Lee, J. Fitt, J. Woodbridge, G. T. Miles, W. Warren, J. Burnett, G. Norman, Wm. Paul, J. Smith, T. J. Saltmarsh, T. B. Haywood, Harrison Weir, P. Crowley, and R. D. Blackmore.

The exhibits were few, but the Melons and Cucumbers in competition for the special prizes increased this portion of the display. A cultural commendation was awarded to Mr. Clark, Twickenham, for some large handsome fruits of *Pauline Strawberry*, capital in shape, colour, and flavour. Mr. J. Watkins, Pomona Farm, Withington, Hereford, sent twelve varieties of Apples remarkably well kept, the examples of *Dumelow's Seedling*, *Norfolk Beefing*, *Hambleton Deux Ans*, and *Rymer* being uncommonly good. Mr. J. Goodacre, Elvaston Castle Gardens, Derby, exhibited a well set bunch of *Lockington Hall Muscat Grape*, which is said to be earlier than *Muscat of Alexandria*, which it closely resembled, also a large compact bunch of *Rockferry Hamburgh*, described as fourteen days later than *Black Hamburgh*, keeping its colour better. Mr. C. Turner, Slough, showed a seedling Melon named *Turner's Green Flesh*, of good size, and well netted. Mr. Woodgate, Warren House Gardens, Kingston-on-Thames, sent samples of a seedling *Strawberry*, bright in colour, of moderate size, but it was not considered distinct enough for a special award.

The special prizes for Melons were adjudged as follows:—Messrs. Sutton and Sons' prizes for a brace of Melons. First, Mr. J. H. Goodacre, Elvaston Castle Gardens, with *Hero of Lockinge*. Second, Mr. C. J. Waite, Glenhurst Gardens, Esher, with the same; and third, Mr. Lockie, Oakley Court Gardens, with *Imperial Green Flesh*. There were six competitors, all showing good fruits. Messrs. J. Carter & Co.'s prizes for *Blenheim Orange Melons* brought several exhibitors with fine specimens, Mr. T. Lockie winning the first place, followed by Mr. H. W. Ward, gardener to the Earl of Radnor, Longford Castle, and Mr. C. J. Waite. The prizes offered by the same firm for a brace of Carter's Model Cucumbers were won by Mr. Lockie, Mr. Waite, and Mr. G. Collins, Wandsworth Common, in the order named, the first being beautiful even fruits. Messrs. Webb & Sons contributed

plant, with small rounded dentate leaves, and panicles of small bright red tubular flowers, very graceful, and freely produced. The plant shown had been lifted from the open ground and placed in a pot, and it had fifty panicles 18 inches to 2 feet high.

Rose Lady Alice (Messrs. Paul & Son).—A sport from Lady Mary Fitzwilliam, exactly the same in the style of flower, but nearly white, faintly tinged with pink in centre.

Chrysanthemum Leucanthemum semi-duplex (Saltmarsh & Son, Chelmsford).—A variety of the Ox-eye Daisy, in which an extra number of narrow white ray florets had been produced.

Delphinium Chamont (Kelway & Son).—A semi-double variety, bright blue with purple centre, comacost spikes, very handsome.

Delphinium Britannia (Kelway & Son).—A distinct variety, rich dark blue, with a white centre.

Gaillardia Vivian Grey (Kelway & Son).—A rich golden yellow variety, fine heads, handsome.

Pæony Glory of Somerset (Kelway & Son).—A bold variety, the flowers large, full and fragrant, of a rosy mauve tint.

Rose Cleopatra (H. Bennett).—A pedigree seedling Tea Rose from Mr. Bennett's choice store, with grand substantial blooms, delicate salmon pink in colour, very fragrant, and likely to make a handsome exhibition Rose.

SCIENTIFIC COMMITTEE.

Present: Dr. M. T. Masters in the chair; Mr. Pascoe, Mr. McLachlan, Mr. O'Brien, Mr. Ridley, Dr. Lowe, Mr. Lynch, Col. Clarke, and Rev. G. Henslow, Hon. Sec.

Lonicera pubescens, hybr.—Col. Clarke exhibited sprays of a hybrid raised between this species and *L. italicum*. The plant possesses the perfoliate foliage of the latter, the male parent, as well as the climbing habit and scent. It has small yellowish flowers.

Bulbophyllum barbigerum.—This Orchid, like *B. Calamarii*, is remarkable for the peculiarity of having an oscillating labellum. Remarking on the mechanical movements of the labella of Orchids, Mr. O'Brien called attention to the interesting fact that he had more than once observed a spontaneous movement in the "tails" of *Masdevallia corniculata*. On watching them closely they moved backward and forward slowly, but occasionally with a jerk. This peculiarity does not appear to have been previously noticed.

M. Simula.—Mr. O'Brien exhibited a plant of this minutely flowered Orchid, as also of variations in the colouring of the perianth leaves of *Catasetum atratum*.

Liquidamber styraciflua.—Dr. Lowe called attention to the variety of this plant in modern gardens, but that it was frequently grown in old ones. He exhibited a branch from an old garden at Putney adjoining another in which was a Thorn said to have been planted by Oliver Cromwell.

Hakea linearis.—Dr. Masters showed a branch of this plant grown by Miss Owen, Ireland. It is remarkable for its flattened leaves below, and cylindrical above.

Helichrysum (Swammerdamia) antenarium.—A shrub with snow white masses of small flowers, was also sent by Miss Owen.

Flowers, Monstrous.—Double form of *Silene inflata*, and *Pæonia prolifera* superba, with floral bud issuing from the open carpels, exhibited by Mr. Ware; and a semi-double *Chrysanthemum Leucanthemum* occurring wild, from Mr. Saltmarsh. In this form the additional ligulate florets were very narrow, resembling Japanese forms of *Chrysanthemum*. It received a first-class (floral) certificate. Dr. Masters observed that it was known to occur much more "double" than is the present form, and Mr. Lynch had seen it with all the florets "tubular"—i.e., in the "quilled form."

Lilium bulbiferum.—Miss Owen sent flowers with anthers malformed. It was suggested by the Secretary it might be due to enlargement of the aerial bulbs (none of which were sent), as he had known cases where hypertrophy of the bulbs caused complete atrophy of the flowers. *Miltonia vexillaria*, exhibited by Mr. Hollington, showed the peculiarity of the markings (the so-called insect "path-finders") of the labellum repeated in various degrees upon the sepals and petals. This was, however, not coupled with any attempt at a pelorian condition of the flower. A botanical certificate was awarded the exhibitor. *Cattleya Wagneri*, Mr. Smee exhibited a blossom in which the median sepal was adherent to the column of the flower. *Aceras anthropophora*, Mr. Ridley exhibited specimens, which he undertakes to examine and report upon their malformations.

Plants Exhibited.—From Mr. Veitch came *Styrax japonica* and the Japanese *Syringa*, the former being a very free-flowering shrub with white scented flowers. Mr. Lynch showed the following from the Cambridge Botanic Gardens—*Polemonium flavum*, *Cecropia stapeliæformis* (with a long, tubular, slender-rayed and spotted corolla), *Helianthus occidentalis*, *Melia azedarach*, *Cerasus virginiana*, *Myrsiphyllum asparagoides* (in fruit), *Echeandia eleutherandea*, *Dachopogon strictus*, *Hymenocallis Harrisiana* (with very slender perianth-leaves and reduced corona), *Fontainesia californica* (?), a free-flowering shrub with minute flowers. It is said there is only one species in cultivation, hence it was forwarded to Kew for identification. A vote of thanks and a botanical certificate for the last-mentioned plant were unanimously awarded to Mr. Lynch for his interesting exhibits.

SPECIAL GENERAL MEETING.

As previously announced a special general meeting of the Fellows of the Royal Horticultural Society was called for Tuesday afternoon at 3 P.M., to consider the present position and prospects of the Society. There was a good attendance of Fellows, the Council and officers present being as follows:

—Sir Trevor Lawrence, Bart., M.P., in the chair; Baron Schroder, Professor Michael Foster, Colonel Trevor Clarke, Major Mason, Dr. Robert Hogg, Sidney Courtauld, W. T. Thiselton Dyer, William Lee (Secretary), Wm. Haughton (Treasurer), and Captain Bax (Assistant-Secretary).

After the Secretary had read the notice calling the meeting, Sir Trevor Lawrence proceeded to briefly review what had been done by the Council since the annual meeting. He said that the arrangements between the Royal Commissioners of the 1851 Exhibition and the officials of the Royal Albert Hall had not been sufficiently advanced to permit the Royal Horticultural Society to enter into any engagement with the latter body as had been originally proposed; so that the actual state of affairs

was very similar to what it was at their previous gathering. Expenses were, however, still going on, and it was felt that the uncertainty respecting the future of the Society was having a most prejudicial effect; they were losing Fellows and not gaining others in the same proportion. As it seemed useless waiting for the completion of the arrangements referred to, the Council had entered into direct negotiations with the Royal Commissioners, with a view to obtaining the use of such buildings as might be necessary for their purpose, for it appears that the buildings near the entrance at the Exhibition Road and that containing the Lindley Library will shortly be pulled down, so that fresh quarters are absolutely necessary. The result of the representation made to the Commissioners was that a site near the western arcade was offered to the Society, but it was not a suitable one; the approach was bad, and the space—2700 square feet—was insufficient, especially as no promise could be given that the conservatory or other portion of the grounds could be utilised by the Society. It was therefore represented to the Commissioners that the site and space were inadequate, and they were asked if some other offer could be made, the reply being, that pending the settlement of an arrangement with the Royal Albert Hall officials nothing further could be done. It thus became incumbent upon the Society to look elsewhere, and a number of sites had been proposed and their respective merits had been examined carefully, with the result that all would have necessitated a great outlay besides that incurred in the erection of buildings, which the Society in its present condition could not venture upon. Expenses were not decreasing, and the fact that they would be shortly running into debt rendered it imperative that some decision should be arrived at immediately. At the present rate there would be a deficit at the end of the year of £1000, but this would be greatly reduced if the large number of outstanding subscriptions were paid up. Their financial position was partly due to losses incurred in connection with the Liverpool Show last year, but he did not consider it alarming, as if some definite scheme was before the Society he felt that they would soon recover. There was a large horticultural interest in this country, and there were plenty of persons anxious to support the Society.

Sir T. Lawrence then read the letter which had been sent by the Council to Her Majesty the Queen, explaining their position, referring to their long period of useful work, and mentioning the interest taken in their welfare by the late Prince Consort. Her Majesty's reply was as follows:—"Aix-les-Bains, April 16th, 1887.—SIR,—I have duly laid before the Queen the memorial you have forwarded on behalf of the Council and Fellows of the Royal Horticultural Society, in which you express your desire to retain the connection with South Kensington which has lasted for more than a quarter of a century. Negotiations with reference to the gardens are going on between the Royal Commissioners of the Exhibition of 1851 and the Council of the Royal Albert Hall. The Queen hopes that, if the upper gardens and conservatories are acquired by the Royal Albert Hall, there will be no difficulty in your Society coming to an agreement with the Hall both for shows and for office accommodation. As the area left in the hands of the Royal Commissioners after the dedication of the ground for the Imperial Institute will be a small one, the Queen does not think the Commissioners would be able to provide a gratuitous site for the offices of the Society. I am commanded by the Queen to add that Her Majesty trusts some satisfactory arrangement will be arrived at, as Her Majesty has not ceased to take an interest in the welfare of the Royal Horticultural Society.—I have the honour to be, Sir, your obedient servant, HENRY F. PONSONBY." The President stated that he had read these letters to show the Fellows that all had been done to retain their place at South Kensington, but they must now turn elsewhere, as it was obviously impossible to go on in this way. The proposals were twofold. The Fellows would be asked to empower the Council to take such steps as would be necessary for the future conduct of the Society to remove to Chiswick at the end of the year, or as soon as their engagements with other societies would admit. In conclusion he said that he would be glad to answer any questions, and he assured the Fellows that the one effort of the Council was to restore the Society to the position of utility it ought to occupy.

Mr. Shirley Hibberd asked whether the Committee appointed at the annual meeting had made any report, and whether it helped them in any way out of their difficulty. The President said that a report had been submitted to the Council, which he then read, the principal points in it being that the condition of the Society should be fully explained to the Queen, that the Society should extend its sphere by admitting gardeners as Fellows at half a guinea, and that an efficient permanent paid Secretary should be appointed. Sir Trevor Lawrence said the former they have already done with the result as stated. They quite concurred in the desirability of increasing the scope of the Society, also in the other points; but there were at present some financial difficulties in the way.

One Fellow thought it undesirable to come to a decision until it was known definitely what course the Royal Commissioners would take with regard to the gardens. Another Fellow considered it better to return to Chiswick at once, and hold shows as formerly, rather than remain at South Kensington with the risk of increasing their debt. Mr. Shirley Hibberd did not think the position deplorable. A debt of £1000 would be comparatively insignificant. The country had not been appealed to; the Society must enlarge its borders, and become what it professed to be—a Horticultural Society. They had been strangled by the charter, and he thought it would be better if they dropped the Royal and became a National Society. He considered their going to Chiswick was beginning a reorganisation in a healthy way, that would produce good results.

Mr. Harry J. Veitch, after remarking that the Committee had been met most favourably by the Council, said the general opinion was that it would be desirable for the Society to get rid of the onus of South Kensington and return to Chiswick, obtaining a hall in London for their meetings. He then proposed the following resolution—"That this meeting requests the Council to take such steps for the maintenance and housing of the Society as may appear to them best calculated to maintain the character and utility of the Society and the interests of horticulture committed to its charge." This was seconded by Dr. M. T. Masters. Professor Michael Foster then remarked that he understood the occupation of Chiswick would only be temporary, and he moved as an additional resolution, "That steps be taken immediately to secure accommodation for the Society at the close of the year, either permanent or temporary, in some central situation in, or not far from the City."

Baron Schroder seconded this proposal, and said that the importance of a central situation for the shows and meetings was fully recognised, and he was certain that it would lead to a great increase of Fellows, and impart new life to the Society. Mr. Johnson suggested that the two resolutions be combined, and when put to the meeting they were carried unanimously. The proceedings terminated by a hearty vote of thanks to the President.



A STRAWBERRY FETE is announced to be held in the Royal Horticultural Society's gardens at Chiswick on July 9th, for Fellows of the Society and their friends.

— THE BIENNIAL EXHIBITION OF AGRICULTURE AND ENTOMOLOGY IN PARIS will take place from August 27th next to September 29th, at the Orangerie, one of the terraces of the Tuileries Gardens. The French Minister of Public Works is the President of the Society which organises the display.

— A CORRESPONDENT, "Pomona," writes to us from India as follows on PRESERVED FRUIT:—"I see it stated in the *Times of India* that fruit is preserved in a fresh state in Australia by being exposed to the fumes of sulphurous acid, and then packed in air-tight cases. Could you or any of your correspondents kindly inform me if this has been tried in England, and whether common sulphur should be used, or sulphuric acid in a liquid state, and how should the fumes of the acid be applied?" We do not know that the method is practised in England, but will readily publish any information that may be sent to us on the subject.

— ROYAL FLORAL DECORATIONS.—Messrs. Charles Turner and Sons of the Royal Nurseries, Slough, had a busy day on the 23rd inst., when Her Majesty returned from Paddington to Slough and Windsor. The departure platform of Paddington station was representative of a flower show, which extended outside, large Conifers in tubs flanking the approach. Specimen Palms, Roses, Pelargoniums, Rhododendrons, and Ivies were effectively disposed, and groups formed of smaller plants, such as Gloxinias, Fuchsias, Marguerites, Ferns, Lobelias, Isolepis, and others, while hanging baskets admirably furnished contributed materially to the display. The Slough and Windsor stations were similarly embellished, and being smaller the effect was the more pleasing, the arrival platform at Slough representing a well-furnished conservatory, and countless flags and banners rendered the scene singularly gay.

— OUTSIDE the station at Slough a wonderfully fine TRIUMPHAL ARCH was erected, Mr. Arthur Turner and a score of men having been employed on it for three days. It was 45 feet high, with a central span 30 feet wide, and two side spans of 10 feet, with four flanking columns 8 feet wide; the sectional width or thickness of the structure was also 8 feet. It was entirely covered with flowering sprays of lilac Rhododendrons and scarlet Poppies, large circles of white Rhododendrons being formed above the central arch, flanked with the letters V.R. 6 feet high with the same kind of flowers. The shoulders of the arch were furnished with Palms and Tree Ferns, and the base of the structure with Conifers and Euonymus. Both as regards magnitude and finish this fine Jubilee arch merits recognition. A beautiful bouquet made by Mr. Turner and presented to Her Majesty was composed mainly of Cattleyas, Odontoglossums, and Maréchal Niel Roses.

THE JUBILEE CELEBRATION IN READING.—The establishment of Messrs. Sutton & Sons of Reading was decorated and illumined in a manner worthy of the specially appointed seedsmen to Her Majesty and the Prince of Wales. As usual the royal standard floated over the market place frontage, and in addition to this a scarlet banner with the name of the firm in white lettering extending out over the roadway. Running the whole width of the building was a handsome design in festooned drapery of imperial purple with fringe of purple and gold. Below this, fitting in between the windows on the second floor, the royal initials, V.R., with the dates 1837-1887 on each side, were tastefully shown in gilt lettering on a ground of purple, matching the design above. It should be mentioned that the dates representing the period

of fifty years over which the Queen's reign has extended refer also to the fact that Messrs. Sutton are this year celebrating the fiftieth anniversary of their removal from King Street to their premises in the market place, an event co-incident with Her Majesty's accession to the throne; hence they had a special interest in the jubilee rejoicings. The illuminations at Messrs. Sutton's establishment were very fine. They consisted of a magnificent design in crystal, occupying the centre of the building on the first floor, surmounted by a crown, and having the royal arms for a centrepiece, with the words "God Save the Queen and the Prince" as a border. On each side was an immense star and garter, also in crystal; each of these, together with the central designs, being backed by a trophy of flags. When lighted up the effect of these illuminations and decorations was truly charming. It should be further stated that the firm provided a substantial repast for 2000 aged persons of Reading, who partook of it in the great ware-rooms of the establishment that are devoted to grass and farm seeds during their season of storage.

— ARCADIA.—A scheme is being developed by Mr. Harry Etherington to convert the Agricultural Hall at Islington into a holiday retreat under the above title, which will be open from July 9th to September 24th this year. It is said that the Hall has been transformed into a garden with beds of flowering and foliage plants, with walks, rustic bridges, ferneries, fountains, &c. A series of flower shows will be held at which cups, gold and silver medals, will be given as prizes, musical and other attractions being provided.

— AN AMATEUR'S ORCHIDS.—The term amateur has a wide bearing, but in this instance it refers to a gentleman who practically grows his own plants, having only occasional assistance, and has raised many. Mr. John Harrison of Claremont House, St. John's Grove, Leeds, has perhaps some of the largest groups of Orchids in tubs to be found in a garden and house so small—Cattleyas, Odontoglossums, Cœlogynes, Dendrobiums, &c., 3 feet or more in diameter, and established in a remarkably short period, and if they continue to flourish will soon make splendid masses. Smaller plants of Cattleyas are also represented in good varieties, the chief being C. Mossiæ Harrisoni, that was certificated at York on the 17th inst. It is a fine variety with a beautifully fringed lip $1\frac{1}{2}$ inch across, the crimson markings being remarkably rich and relieved with light feathery streaks, the flowers being 7 inches across. We understand it is one of Mr. Bruce Findlay's importations from Venezuela. Mr. Harrison's Zonal Pelargoniums, Princess Ida and Princess Alice, that were also certificated at York, were flowering. They are good in habit, form of flowers and truss, and of a "crushed strawberry" colour. Our peep into Mr. Harrison's little greenhouses was at an unfortunate moment, for the earnest and successful amateur was not at home.

— DURING the Jubilee week and on the occasion of the Royal Counties Agricultural Society's Show held at Reading, MESSRS. OAKSHOTT & MILLARD decorated their premises very tastefully. On the upper part of the exterior were large letters, "V. R.," with mottoes on either side, "Success to Agriculture," and "The Profit of the Earth is for all." Underneath these were the words, "God Save the Queen." Immediately over the fascia flags were placed along the whole length, with the royal arms in the centre surmounted with small sheaves of corn, while a large sheaf of Wheat was placed over the entrance. The interior of the premises was also tastefully arranged.

— A PARTY of the WAKEFIELD PAXTONIAN SOCIETY recently paid a visit to Studley Royal, the seat of the Marquis of Ripon. The visitors left Westgate station at 1.3 P.M., and on reaching Ripon drove to Studley Park. The extensive domain with its fine avenue of splendid trees, the gardens, the house, and the extensive collection of curiosities brought from India by the Marquis and Marchioness were all much admired, and the grand old ruins of Fountains Abbey were inspected with interest. The ornamental grounds and the lake were also sources of great attraction.

— MR. J. MALLENDER sends the following summary of METEOROLOGICAL OBSERVATIONS AT HODSOCK PRIORY, WORKSOP, NOTTS., FOR MAY, 1887:—"Mean temperature of month, 48.7°. Maximum on the 17th, 67.0°. Minimum on the 1st, 26.2°. Maximum in the sun on the 17th, 128.0°. Minimum on the grass on the 1st, 17.8°. Mean temperature of air at 9 A.M., 49.6°. Mean temperature of soil 1 foot deep, 49.7°. Nights below 32°—in shade, two; on grass, seven. Total duration of sunshine in month, 109 hours, or 22 per cent. of possible

duration. We had eight sunless days. Total rainfall, 1.44 inch. Maximum fall in twenty-four hours on 19th, 0.25 inch. Rain fell on eighteen days. Average velocity of wind, 10.1 miles per hour. Velocity exceeded 400 miles on two days, velocity fell short of 100 miles on two days. A cold, dry, and very dull month, with a very large proportion of N. and N.E. winds. Vegetation unusually late."

— **POTATO TERCENTENARY.**—Under the auspices of the Royal Horticultural Society a series of papers will be read and discussions promoted on various subjects, scientific and practical, bearing on the Potato, in commemoration of the third century of its introduction to this country. The meetings commence at South Kensington on July 13th, and continue at intervals till the 27th of the same month.

— **AN AUSTRALIAN HERBARIUM.**—It is stated in *Nature* that Miss Oldfield has presented to the herbarium of the Royal Gardens, Kew, the botanical collections made in Australia by her late brother, Mr. Augustus Oldfield. This gentleman was, as stated by Mr. Bentham in the preface to "The Flora of Australia," an acute observer as well as "an intelligent collector." His series of Eucalypti are especially good, as he took great pains to obtain the various forms of foliage characteristic of each species, as well as the fruiting and flowering stages. Sir Joseph Hooker used his Tasmanian plants in his "Flora" of that colony. Mr. Oldfield "made large additions to the West Australian plants previously known." These collections were placed at Mr. Bentham's disposal for the purpose of his "Flora Australiensis."

— **"B."** strongly recommends *BEGONIAS HYDROCOTILÆFOLIA* AND *MANICATA* for conservatory decoration, and remarks that "The value of these Begonias for furnishing purposes is unquestionable, for they last in good condition for fully three months after their blooms are developed. The best method of having healthy vigorous plants is to raise them from cuttings annually after they have flowered. The old foliage and flower stems should be removed from the cuttings before insertion singly in 3-inch pots in sandy soil, a good pinch of sand being placed in the centre for the base of the stem or cutting to rest upon. If the growing end of the plant is not destroyed they will soon form new foliage. The top of the cutting should only just be above the surface of the soil, so that the foliage will hide the pots. The cuttings root freely in a vinery, or in any warm structure where they can be shaded. Grow them in heat until they are ready for transferring into larger pots, and afterwards under cool frame treatment."

— At a recent meeting of the Scientific Committee of the Royal Horticultural Society examples of *VINES WITH BARREN FLOWERS* were shown. Mr. Barron forwarded flowers, some having the stamens spreading, which set fruit, others with the stamens reflexed, and which were always barren. Mr. Henslow reported upon a microscopical examination of the two kinds, and found that the pollen was shrivelled and utterly useless in the recurved stamens. Like those which remained erect after the corolla had fallen, they burst their anthers while in bud, but as soon as the flower has lost the corolla the filaments become reflexed. On examination of the stigmas, ovaries, and ovules nothing abnormal was revealed, so that if these flowers be dusted with the pollen from a normal kind, a spray being gathered just as the corolla is falling, and shaken over the others, the probability is that they would set fruit. Such an experiment would soon show if the pistils were unaffected or not. It appears that these barren flowers occur on rods growing side by side with fertile ones, and may occur on any variety, so what is the inherent constitutional cause of the "contabescence" of the stamens would seem to be obscure. It is discussed by Darwin ("Animals and Plants under Domestication," ii., page 165), but he could not suggest a cause, though some plants (*Dianthus* and *Verbascum*) thus affected grew on a dry and sterile bank. Dr. Masters called attention to the researches of Engelmann and Planchon on this subject, as well as to his own observations at Chiswick several years since. A tendency to assume a dioecious condition seems to be general in all Vines, and is completely attained in the American species. Allusion was also made to corresponding phenomena in Strawberries.

— **PROFESSOR THURBER** thus describes finding *PALAFoxia* (*POLYPTERIS*) *HOOKERIANA* in his travels some time ago:—"When we came to a water-hole on the road between El Paso del Norte and the City of Chihuahua, in Northern Mexico, surrounded by a thick growth of plants having bright, rose-pink flowers, we were glad to find it to be

the same that we had known in cultivation as Hooker's *Palafoxia*, *P. Hookeriana*, and quite as large and as showy as we had seen it in gardens. The plant belongs to the Aster Family (Compositæ), and bears numerous Aster-like heads of flowers upon branching stems of 1 to 4 feet high. The flower-heads have pinkish or rose-purple rays, making it a showy and pleasing hardy plant for the garden. Upon looking up what later botanists have had to say about this *Palafoxia*, a genus named in honour of a Spanish General, José Palafox, we find that the plant in question is not a *Palafoxia*, but has been placed in an allied genus, *Polypteris*, a name from the Greek words for many and wings, in reference to the structure of the pappus upon the fruit. The proper botanical name is *Polypteris Hookeriana*, but this will not prevent the use of Hooker's *Palafoxia* as its garden name. According to generally accepted rules, it sometimes becomes necessary to refer a species to a genus different from that in which it was originally placed. It is always to be regretted, as many find it more difficult to unlearn a name than to learn a new one."

— **SOME** attention has been recently called to the *CHORO-GI*, *STACHYS AFFINIS*, as a new vegetable, and the following reference to the plant (a native of China and Japan) in a work by M. Poillieux is interesting:—"In the spring of 1882 we received from the Acclimatisation Society a box containing tubers of *Stachys affinis*, which had been sent to the Society by Dr. E. Bretschneider, Physician of the Russian Legation at Peking, but all but five or six tubers perished during the voyage. Such, however, is the ease with which it is propagated, that the loss of the greater part did not grieve us. From the first year each tuber planted on an old hotbed gave us a satisfactory increase, and from the second year the plants left on the bed yielded from 200 to 300 per cent. By this means we were enabled to send plants to the vegetable section of the Acclimatisation Society, and, following the example of the Japanese, to introduce into our pickles a pretty large proportion of tubers. The result has been very satisfactory. For five or six years we had in vain asked for 'Choro-Gi' in Japan. The plant is hardy, having stood without protection through the winter of 1882-83, though it is true that winter was not a very rigorous one. Belonging to Northern China, it will, however, probably stand the hardest winters. The tubers of 'Choro-Gi' are used in Japan for pickling in Plum vinegar, but are not used in the same way in China. The tubers, which are small, French-white, and of fine shape, have no flavour of their own, but readily absorb the aromatic vinegar in which they are immersed. We recommend that they be mixed with *Trichosanthes anguina*, *Tropæolum tuberosum*, and *Mioga* (*Zingiber Mioga*). The sight of the small tubers of 'Choro-Gi' is sufficient to induce us to consign them at once to the frying-pan, either in their natural state or plunged into paste and seasoned with lemon juice. Cooked in the latter way particularly, they make an agreeable dish, which can be made use of the whole winter. We must observe, however, that the tubers cannot be kept out of the ground, or out of a sand heap under cover, as if exposed to the air they soon blacken and wither, and in a few days are lost."

THE COMING STRUGGLE.

WE are now getting within a very appreciable distance of our Rose shows, and it behoves us all to be upon the alert; and as I am not personally engaged in the contest, may perhaps as an onlooker be able to add something to the items of information all are ready to advance at this time.

We know what a flutter there was amongst Rose exhibitors a little while ago, when the long continuance of cold winds and a low temperature seemed to make the progress of our plants impossible. Secretaries of societies were in despair. They were badgered on every side to alter their dates, people never seeming to consider that there were other interests to be thought of besides their own, and that if they altered a date it would probably be for one already taken up by some other society. There have been complaints enough already about the fixtures of shows, some days being crowded in, others left untouched. Especially is this the case with Thursday; nor is the reason far to seek. It is the most usual day for the weekly half-holiday, and secretaries and committees, knowing how very difficult it is to keep up the funds, choose that day in the hope that it may add to their exchequer. The result is, I imagine, a very doubtful one. I hardly think that the people for whom the half-holiday is intended are they who value or attend Rose shows. I know, for instance, one show in a city of upwards of 20,000 inhabitants where the proceeds after six o'clock, when the shops were closed, were exactly 15s. This concentrating of Rose

shows on particular days is a sore evil, but if societies having fixed and published the dates of their exhibitions think that it is open to them to change their day because as the season advances another date would better suit their locality, the evil becomes intensified. What would be thought of a poultry society, which having fixed its date, should by-and-by alter because the season had been so cold that the early hatched birds had done badly? yet that would be as good a reason for altering it as to alter a Rose show. But this is somewhat of a digression, though I feel the matter is one of so great importance that it ought not to be lost sight of. Well, the first fortnight in June has made a most marvellous difference. There has been an unusual amount of sunshine, and the thermometer has rapidly gone up, reaching for us in June the most unusual height of 83°. The wind has been warm and soft. We had here in Kent on two days an inch of rain, and the growth that Roses made was simply marvellous. Buds were rapidly formed, disbudding soon became necessary, and now, although the wind has for some days been blowing from its old quarters, N. and N.E., yet there is every prospect I think of Roses being up to time. The effect on Tea Roses has been truly wonderful. Already I have gathered from the open border (although mine is not an early garden), while those on my wall are a perfect blaze of beauty. *Perle de Lyon* is a Rose which in ordinary seasons is very disappointing. It grows well for a wall, forms a fine bud with beautifully coloured foliage, but the buds will not expand. This year they have opened grandly, and some blooms which I have cut might well have passed for a good *Cloth of Gold*. William Allen Richardson is one sheet of brilliant orange-coloured flowers. My favourite, *Comtesse de Nadaillac*, has already given me some exquisite flowers. Climbing *Devoniensis* and *Rêve d'Or* are very full, the latter making its way to recover its lost ground; while *Longworth Rambler* (not so bright in colour as one might wish to see it) is literally covered with thousands of blooms from top to bottom. This, with its well nigh evergreen foliage and perpetual blooming character, makes it a most desirable Rose for a wall. In looking round those on my own and digesting the various accounts I receive from other gardens there is every prospect of a good Rose season. Of course the last fortnight in June may upset our calculations, but as far as we can see now our hopes are bright.

Of the three great enemies of the Rose, the maggot, mildew, and orange fungus, the first has as yet only made its appearance, but it has been (with me, at least) in very considerable quantities; however there is one comfort, that it is not difficult to detect its presence, and when taken in time all injury from it may be prevented. It requires the careful and patient overlooking of each shoot, and as soon as it is perceived it should be taken away and destroyed. As yet I have seen no trace of orange fungus or mildew, although I have heard of both in other places. It seems hopeless to try to prevent either of these pests, and to cure them seems almost as hopeless. Several growers have told me that sulphide of potassium has proved an effective remedy. I have not tried it myself, but mean to do so.

On all sides one hears of preparations for the coming fight, and looking at the two great shows of the year, those of the National Rose Society, there seems to be every prospect of success. At South Kensington we shall have a clearer stage than we have had for some years past, for there will be no exhibition to interfere with us, and one at least of the corridors will be available. No Roses will be placed in the back alley, where there was hardly room to move, and Roses were baked under the concentrated glare of the conservatory, which no shading seemed to obviate. There will not be that awful rush of visitors which made locomotion dangerous, and the lives of exhibitors miserable last year, for the simple-minded crowd imagined that the Roses were left there for them to appropriate, and it was difficult to make them understand "hands off." I fear the question is not whether we shall have too great a rush of visitors, but whether there will be enough. I anticipate a rush for our Provincial Show in Edinburgh. Our English Rose growers seem determined to do their "level best" to make it a success, so much so that negotiations were opened with the London and North-Western Railway as to the possibility of running a special train to convey exhibitors and their boxes on the night of July 12th, but it was found that this was a little beyond their powers. It has, however, been determined, if exhibitors agree to it, to attach one or more special vans to the 8.50 Scotch express on that night, arriving in "Auld Reekie" at 6.25 on the morning of the Show. The vans will be exclusively appropriated to exhibitors, a good layer of grass will be laid in the bottom to prevent vibration and keep it cool, and as there will be no other luggage allowed in these vans, the boxes will not be bundled about by porters who have no mercy, and never discriminate as to whether they are boxes of flowers or portmanteaus. The only discrimination I know them to practise is if a box is marked "This side up" to turn it the opposite way.

Exhibitors in the south of London, and probably those in the parts of Essex and Herts near to London, will join at Euston. Those from Oxford, Birmingham, &c., will have to reach Rugby so as to meet the express at 10.52. There is a stopping train for Bletchley at 9.8 which will do it. Then exhibitors from Cheshire will have to reach Crewe to meet the train at 11.37. The 11.6 train from Chester will do this. All this is of course contingent on what the exhibitors themselves may determine; but the fact of the arrangement being possible shows that the Committee of the National Rose Society is quite alive to their wants. It will be a considerable saving of expense to those who adopt it, for as the boxes are not reckoned as passengers' luggage, and they weigh heavy, and the distance is great, moreover, they will secure to themselves a greater likelihood of their boxes being carefully carried.

As our friends in Scotland are very much on the alert and have entered heartily into the arrangements for the Exhibition, and as, too, we shall have exhibitors from the north of Ireland, I am very hopeful that it will prove to be a grand success. Altogether, then, our prospects are "rosy," and I hope that when we meet we may be able to say at last we have a good Rose season, and one for which it does not require us to make apologies.—D., *Deal*.

ROSE SHOW FIXTURES.

July 2nd, * Eltham.	July 12th, * Brockham, * Diss, and * Oxford.
5th, * S. Kensington (N.R.S.).	13th, * Edinburgh (N.R.S.).
6th, Brighton, * Ealing, Regent's Park (R.B.S.), * Sutton, and * Tunbridge Wells.	14th, Alexandra Palace, Birmingham and Harles-ton.
7th, * Bath, * Farnham, * Farn-ingham, * Ipswich, Malvern, * Reigate, and * Winchester.	15th, * Helensburgh, * Hereford, and Hull.
8th, * Hitchin and * Maidstone	16th, * New Brighton.
9th, Crystal Palace.	19th, * Leek.
	20th, * Birkenhead.
	22nd, Manchester and * Ulver-stone.

Those exhibitions, which are held by the National Rose Society or by Societies affiliated with it, are distinguished by an asterisk. In the above list there are three 2-days shows (Birmingham, Brighton, and Hull), and one show extending over three days—that at the Alexandra Palace. In each of these cases the date of the first day's exhibition only is given. No less than five fixtures have been altered since my last list appeared at the end of March—viz., Brockham, Crystal Palace, Hereford, Hitchin, and Reigate.

The clashing of fixtures is much to be regretted, but still more serious is, I think, the practice of altering fixtures which have been once definitely decided upon and made generally known.—EDWARD MAWLEY, *Rosebank, Ber-hamsted, Herts.*

FLORAL DECORATIONS AT A ROYAL GARDEN PARTY.

ON Wednesday last, on the occasion of the Queen's garden party at Buckingham Palace, to which 6000 guests were invited, the floral decorations were extensive and admirably carried out under the superintendence of Mr. T. Jones, gardener to Her Majesty at Frogmore. Groups of plants were arranged in the windows and on the terrace, while several of the principal marquees on the lawn were most tastefully decorated with groups and borders of flowering and fine-foliage plants. The majority of these had been brought from the Royal Gardens at Windsor, some thousands being so provided, and these included the handsome specimen Palms, Crotons, Cordylines, Dracanas, &c., which were recently noted in these pages as occupants of the large conservatory and stoves at Frogmore.

The flowering plants chiefly consisted of *Hydrangea hortensis* varieties, the blue tinted form being very handsome; *Lilium longiflorum* in abundance, Roses in pots, double yellow Chrysanthemums, *Spiraea japonica* and *S. palmata*, which had a charming effect, *Pelargoniums* both zonal and decorative varieties, *Chrysanthemum frutescens*, *Kalosanthes coccinea*, with richly coloured Coleuses, and *Isolepis gracilis* for margins. These were displayed in groups at the corners of the marquees and as marginal borders or screens, while in addition numbers were employed in the apartments of the Palace. A simple, effective, and natural style of arrangement was adopted throughout, nothing formal or stereotyped, and the appearance of the groups was considerably improved by the neat margin of green painted narrow zinc faced with an ornamental buff brown wire edge. This is made in various lengths and fixed in its place by means of iron pins; it is easily secured in its position, can be placed round groups of any form or size, and imparts a neat finish to the arrangement, besides preventing the plants being disturbed by a visitors. Mr. Jones carefully considers all these seemingly minor matters, and with the aid of a large staff of assistants he succeeded in completing his arrangements most satisfactorily early in the day.

RICHMOND SHOW.

JUNE 29TH.

A MAGNIFICENT exhibition was provided in the Old Deer Park on Wednesday last, three large marquees being filled with plants, flowers, fruits, and vegetables. Although the shows held at Richmond have long been noted for their good quality, the one held this season surpassed all previous

efforts. The Committee, and their energetic Secretary, Mr. J. H. Ford, have every reason to be satisfied with the result, and we regret that the time at our disposal only admitted of a brief résumé of the chief features.

In the large plant marquee, Orchids, stove and greenhouse plants, Pelargoniums, and fine-foliage plants were the principal features. H. Little, Esq., East Twickenham, had a splendid group of well-grown Orchids not for competition, comprising some wonderfully fine *Cypripediums*. The same exhibitor was also first with six exotic Orchids, capital plants of *Cattleya Mendeli*, *Lælia purpurata*, *C. Santeriana*, *Cypripedium barbatum grandiflorum*, and *Odontoglossum vexillarium*. Mr. James, West Norwood, was second with good plants of *Brassia verrucosa* and *Cattleya Mendeli*; Messrs. Jackson & Son being third. The stove and greenhouse plants from Messrs. James, and Jackson & Son, who were first and second, included some fine specimens that have been noted before this season. The Zonal and other Pelargoniums made a bright bank, the prizes being taken by H. Little, Esq., Mr. C. Turner, E. D. Paul, Esq., W. S. Graham, Esq., Abercorn, Richmond (gardener, Mr. Barnes), and W. Furze, Esq., Roselands. Mr. Little's specimens were in excellent condition, as were also those from Slough.

The Ferns from E. D. Paul, Esq., Cambridge House, Twickenham (gardener, Mr. Monro), were remarkably fresh and healthy. W. Herrett, Esq., Otlands Park, and E. M. Nelson, Esq., Hanger Hill House, Ealing, were also good exhibitors. F. Wigan, Esq., in another class was awarded the premier prize. Messrs. Hooper & Co. took the lead with fine foliage plants, excellent large specimens, followed by Mr. James and E. M. Nelson, Esq. Coleuses from Messrs. Coombs and East were well grown.

The large groups in this marquee were most tasteful productions. Messrs. Hooper & Co. were first, as usual, with a bright graceful combination of plants. Mr. W. Brown was a close second with a charmingly arranged group, one of the best he has shown, Mr. H. James being third with a distinct effective group. With smaller groups the executors of the late J. R. Greave, Esq., Hatfield House, Cambridge Park, was first with a neat and tasteful group. Lady Parker, Stawell House, Richmond (gardener, Mr. Bowell), was second with an admirable arrangement. W. Herrett, Esq., was third.

In the marquee devoted to floral decorations and cut flowers the exhibits were numerous and very interesting. Lady Ellis's prizes for the best table arranged for twelve persons brought several good competitors, Mr. Goodwin, Twickenham, being placed first, the three stands being filled chiefly with Cornflowers and Alpine Poppies, but, in the opinion of some judges, it was rather too heavy, the second-prize table, arranged by Mr. Chard, Stoke Newington, being preferred for its lightness and the delicacy of the flowers employed. Graceful stands of flowers were shown by Mrs. Chard, who was awarded first honours. Mrs. Hudson was second, and E. M. Nelson, Esq., third.

Rose blooms were abundantly and well represented for the season. In the large classes Messrs. Paul & Son, Cheshunt, C. Turner, Slough, Keynes Williams & Co., Salisbury, and W. Rumsey were the prizetakers with very bright fresh blooms. In the amateurs' classes for Roses T. W. Girdlestone, Esq., Sunningdale, Berks, was first with an excellent stand of twenty-four blooms; Mr. R. E. West, Reigate, and J. P. Kitchin, Esq., Hampton, following. The honours for bouquets were awarded to Messrs. Perkins & Co., Coventry, Mrs. Chard, and Messrs. Martin & Co., Kensington; for button-holes to Messrs. Perkins & Co., Miss C. R. Little, and Mrs. Chard. In another class the last named exhibitor was first for a bouquet, Messrs. Perkins, and Messrs. Martin & Co. following.

The third marquee was devoted to the fruit, vegetables and cottagers' productions. For six dishes of fruit Sir Philip F. Rose, Bart., Rayners, Penn, Bucks (gardener, Mr. H. Cakebread), was first with good white and black Grapes, Peaches, Nectarines, Figs, and a Melon. The Earl of Harrington, Elvaston Castle, Derby (gardener, Mr. J. H. Goodacre), was second with good Black Hamburg Grapes. L. J. Baker, Esq., Ottershaw Park, Chertsey (gardener, Mr. Osman), was third. Black Grapes were shown by five exhibitors, Mr. Osman leading with good Black Hamburg. Mr. F. Thompson, Hurstside, West Moulsey (gardener, Mr. A. G. Hooknip) was second, and Mr. Cakebread third. The prizes for white Grapes were won by Messrs. Osman and W. Harvey, and Mr. W. Bates, gardener to Mrs. Meek, Poulett Lodge, Twickenham, was third with compact bunches. In the district class for black Grapes Mr. Bates was easily first with three excellent bunches of Madresfield Court, well coloured. Mr. Bates was also the premier exhibitor with three bunches Foster's Seedling Grapes, well ripened. With four dishes of fruit Mr. Bates was first, showing black and white Grapes, Peaches, and Nectarines. Melons, Strawberries, Peaches, Nectarines (well shown by Mr. Sullivan) and miscellaneous small fruits were numerous.

Vegetables formed an excellent feature, some admirable specimens being contributed. With twelve dishes Colonel the Hon. W. P. Talbot, Esher (gardener, Mr. C. J. Waite), was a capital first, closely followed by W. F. Hume Dick, Esq., Thames Ditton (gardener, Mr. W. Palmer); Mr. J. Coomb, Sheen House Gardens, Mortlake, was third. Messrs. J. Carter & Co.'s prizes for collections of vegetables were gained by Mr. C. Waite, Mr. J. Coombs, and Mr. J. Stroud, all showing excellent samples. With six dishes of vegetables Mr. J. Stroud was first, and with nine dishes Mr. Coombs took the lead. Messrs. Sutton & Sons' prizes were awarded to Mr. Waite, Mr. Palmer, and J. R. Tindale, Esq., who contributed admirable collections of vegetables.

Jubilee silver medals were awarded as follows:—To Mr. W. Bates for an excellent specimen of *Allamanda Hendersoni*; to Mrs. Chard for three vases of flowers; to H. Little, Esq., for *Cattleya intricata*; to Mr. Fittell for a group; to Mr. J. Coombs for a collection of vegetables; to Messrs. Hooper & Co.; and several other exhibitors.

The miscellaneous exhibits were numerous. Messrs. C. Lee & Son, Hammersmith, sent a fine group of hardy tree and shrub specimens. Messrs. Gordon & Co., Twickenham, had a group of plants not for competition. Messrs. Jackson & Co. had a group of stove and greenhouse plants, and Messrs. J. Laing & Co. contributed a group of Tuberous Begonias. Messrs. Collins Bros., and Gabriel, Waterloo Road, had a group of hardy flowers. Mr. T. Sharpe exhibited fine fruits of *Empress Eugénie*, *Marguerite*, and *Sir Joseph Paxton*. Messrs. T. Rivers & Son, Sawbridgeworth, had a fine collection of fruit not for competition.



KITCHEN GARDEN.

WATERING VEGETABLES.—We do not remember a June when vegetables stood more in need of water than during the past month. All our crops have suffered severely by drought. Brussels Sprouts, which were planted in April and had attained a height of 15 inches, have been at a standstill for the last fortnight and are half starved in appearance. Cauliflowers which were beginning to turn in are dying, and many of the others are yellow at the bottom of the foliage. We have so many of them that we cannot attempt to water all, and they must take their chance. Turnips are ready and over in a very short time. We are glad we have many successions of them. Peas are suffering severely, and as they do not bear drought with impunity they should be all thoroughly watered. They pay well for this attention, but it is much better to water every vegetable once a week thoroughly than to merely damp the surface daily. This practice is of no use, and is only labour thrown away.

EARLY POTATOES.—Those in the borders are turning out in excellent condition. They are plentiful, large, and first rate in quality. It is grand Potato weather. Where it is the practice to save seed for another year the best way is to allow a few rows to remain undug for this purpose, and do not lift them until they are quite matured. This is a good way to prevent Potatoes degenerating, but we have known the whole of the early Potatoes being dug up, the small ones left behind, and only these left for seed, and this is a plan which cannot be too severely condemned.

EARLY LEEKS.—Where these were planted early in rich soil they are now gaining a large size; and as they will take any quantity of water, do not fail to supply them liberally two or three times weekly. It is the only way to keep them going, and earth them slightly every week until they are full sized. As more earth is put to them the sun and heat will have less influence over the roots, and the sooner they are earthed the better.

GLOBE ARTICHOKEs.—These were severely injured during the winter, and it was only the other day we cut the first heads. Some seasons we have cut them in April. They are plentiful now, but the drought is telling on them and the foliage is drooping. This will cause the heads to cease swelling and become flavourless; but if a good mulching of manure or long grass is placed round them and a thorough watering given they will never feel the injurious effects of the drought.

LATE FRENCH BEANS.—In many cases Kidney Beans are plentiful and good in August and September, but by October they are all far advanced in maturing seed, and such pods are quite unfit for the kitchen; but it is a simple matter to have abundance of tender Kidney Beans up to November if the frost does not cut them down before that, and this is accomplished by sowing a few late rows of seed. The first week in July is a good time to sow them, and if a row or two of runners and a few dwarfs as well are sown, both will be found acceptable in the late autumn. Give them rich deep soil, a sunny position, and sow the seed 4 inches deep.

SEED SOWING IN DRY WEATHER.—Not a week passes at this season without some kind of seeds requiring to be sown, and as they are more liable to fail from heat and drought than they were in the spring from the cold attention should be given to prevent this. In all cases open drills for the seed. Fill them with water at once and again in two or three hours' time, soaking the ground well before sowing; then sow and cover at once with dry soil. It is astonishing how long this dry covering will retain the moisture, and the seed will germinate and the plants grow freely.

ENDIVE.—So long as Lettuce and other summer salads are plentiful there is no great demand for Endive, but quantities of it should be ready the middle of September onwards, and a good sowing of seed should be made now. The green Moss Curled is pretty useful, and good as a first crop, but for a winter supply none equals the Broad-leaved Batavian. This is a particular favourite of ours, and it and the Moss Curled may be sown at the same time, the latter coming in first. The seed may be sown in a little patch broadcast, and a piece of one yard square will supply some hundreds of plants.

PLANTING IN DRY WEATHER.—There are many Savoys, Broccoli, &c., ready for planting now, but the weather is not at all in favour of the operation; and as the plants are not growing much at present the best way is to water them thoroughly in the seed bed, not attempting to transplant them until the ground has been saturated with rain. The other day a friend desired some winter Broccoli. He planted them, and four days afterwards they were almost invisible. Had he deferred planting until rain came they might have been placed in without a leaf drooping; but those who will insist in planting may help them in this way. Make a little mud pool, stir soil in it until it is like paint, then draw up the plants, dabble the roots well in it, and plant before they have time to dry.

TOMATOES.—These are growing freely everywhere. They are forming a great many superfluous shoots, and this never contributes to fruitfulness. They should therefore be examined once weekly, and all the

surplus shoots removed. The best of all ways of securing a heavy crop is to restrict each plant to one, two, or three leaders at most. If the shoots are pinched out a little way from the main stem it will only induce a number more to appear, but if each side shoot is broken off close to the stem they will not readily start into growth again at the same place, and there will be no further trouble with them. All plants bearing fruit should have liberal supplies of liquid manure, and those which have been fruiting since early spring should have a quantity of the old surface soil removed, and redress with a rich fresh mixture.

CAULIFLOWERS.—Although surrounded by woods it is not very often that we are troubled with pigeons, and the destruction of six or eight rows of Cauliflower plants this spring is the only damage they have done us for ten years. Why they should have fixed on them it is difficult to say, as another piece not far off is not touched, and we are cutting the extra early types from this quarter now. The heads are about the size of one's fist, and very sweet. Sutton's King, Webb's Mammoth, and Veitch's Autumn Giant will be the next to follow in heading; but all the first crops will be over by August, and more plants should now be placed in for a supply in September and October. Deal largely in Veitch's Autumn Giant for this purpose. Where any plants have died fill the blanks, and if they are much injured by worms at the root water freely with strong lime water.

MISCELLANEOUS.—Put a layer of manure along each side of the rows of Runner Beans, draw the soil over this in earthing, and then stake them. Where Peas were sown on the level and not in trenches, treat them in the same way. Water those which are a little late with guano water. Clear off all vegetables the moment they cease to be useful. Sow Radish and Mustard and Cress frequently in small quantities. Handweed in the rows of all young plants, and Dutch hoe between the rows afterwards. All gardens should now be looking their best, and weeds must be kept down. If allowed to flower and seed they will cause endless labour in keeping them down. Continue cutting the flowers off Seakale and Rhubarb. Earth up late Potatoes. Some object to this operation, but it is the only way to prevent the surface tubers becoming green. Weed and clean walks, and there need be no difficulty in having the vegetable garden as attractive as any part of the pleasure grounds.

FRUIT FORCING.

MELONS.—Varieties are so numerous that to point out any one specially as possessing particular merit were superfluous, as almost everything constituting high flavour, no matter what the variety may be, is due to the treatment to which the plants are subjected. The greatest aid to flavour is a thoroughly solidified growth, with a rather dry and warm atmosphere, with adequate ventilation when ripening, but this will not impart high flavour to fruit that during its period of swelling has been neglected for the want of the timely removal of the superfluous growth. Liberal supplies of water up to a certain stage are as essential to a thick melting flesh as is the heat and well-ventilated atmosphere to secure high flavour. After the fruit is set and is the size of an egg the laterals should be kept pinched to one leaf, and if this results in too much foliage, so that the leaves upon the primary shoots are crowded or shaded by them, thinning the laterals must be resorted to, removing a little at a time. The plants should be examined at least once, and in the case of very vigorous plants twice a week, for the removal of superfluous growths, the principal leaves being fully exposed to light and air. Until the fruit commences setting and for some time afterwards it should have every encouragement in swelling by maintaining a good moisture at the roots and sprinklings at closing time. Close the house or frame at 80°, and if the temperature rise to 85° or 90° all the better, but after the fruit commences netting less atmospheric moisture should be given, a light sprinkling at closing time sufficing with thorough moisture at the roots until the fruit shows indications of ripening, when the sprinkling should be discontinued and air freely admitted. If the old shoots are cut away the young ones will soon show fruit and set freely. If the plants do not show indications of a free growth, are infested with red spider, or decayed at the collar, it is better to root them out and make a fresh start. Remove the old soil, and where bottom heat is obtained from fermenting material only, a little fresh hot dung worked in will sufficiently revive the bottom heat for this time of year. Observe thorough cleanliness in houses, as the after success depends upon the plants having a good start. Plant on hillocks or ridges rammed well down, and maintain a moist genial atmosphere. Pot any plants requiring it and keep them sturdy. Fertilise the blossoms daily until the requisite number of fruit are set, then remove all the flowers and earth up the plants. Look well after canker at the collar, as it spreads rapidly; it is overcome by rubbing the infested parts with quicklime. Shade only to prevent flagging. Take care to cut the fruits with a considerable portion of stem when removing them before quite ripe, in order to prolong the season of supply.

If there is any difficulty in setting the flowers in frames apply good linings and admit air freely, leaving a little on at night so as to prevent the deposition of moisture on the blossom, it being important that the pollen be dry and the stigmas not destroyed by moisture. Do not overcrowd the foliage, and though it is not desirable to use the knife much during the setting period, keep the growths regulated so as to admit light and air. Watering should be guarded against during the setting, yet the foliage must not be allowed to flag.

VINES.—*Early Forced Vines.*—Those from which the fruit has been cut should be kept free from insects, for if the foliage fall a prey to red spider it is not unlikely a second growth will be made when the Vines

ought to go to rest, therefore syringe them every evening so as to preserve the old foliage as long as possible. Encourage a moderate extension of the laterals, especially in the case of weakly Vines and those long subjected to forcing, being careful to encourage them from the extremities only; in any case they must not be allowed to interfere with the principal leaves. Ventilation will need to be given to the fullest extent day and night, and in the case of moveable roof lights they may be removed. Where, however, it is intended to lift the Vines and lay the roots in fresh compost near the surface the roof lights must not be removed, or they must be held in readiness for placing over the Vines in case of heavy rains, as a wet soil is not favourable to the Vines for lifting.

Late House.—Grapes to hang over the winter months require more thinning than those not intended to keep for any lengthened period. The bunches should be examined for the last time, removing any stoneless or superfluous berries. The high and dry borders of modern culture do not receive, as a rule, anything like the quantity of water they require, especially inside borders. They should be well mulched and liberally watered, sprinkling with some approved artificial manure, watering it well in. The mulching should be kept moist, so as to attract and keep the roots near the surface. With this, and a due regard to air moisture, red spider will not appear, or if it do, heating the pipes to 160°, and brushing them over thinly with sulphur and skim milk, so as to make the sulphur adhere to the pipes, will destroy it. Allow a moderate extension of the laterals, but keep free of gross ones, and do not allow a large quantity of growth to be made, which must afterwards be removed in armfuls, as that gives a check to the roots, not infrequently resulting in shanking. Admit air, rather increase it early, it being advisable to leave a little on at night through a chink at the top of the house. Heat through the day 80° to 85°, increasing to 90° or 95°, with plenty of atmospheric moisture by early closing in the afternoon. Damping should be practised freely in dry hot weather, and the ventilation moderated, as nothing is so injurious and conducive of red spider as excessive evaporation. Fire heat will only be necessary to maintain a night temperature of 60° to 65°, and 70° to 75° by day.

Grapes Colouring.—Those changing colour will require plenty of air, with abundance of heat, as nothing contributes so much to high flavour and finish as a circulation of rather dry warm air, but Vines struggling with a heavy load of fruit should not be subjected to so high a temperature as those luxuriant and carrying no more fruit than what may be considered a fair crop, but rest must be afforded them at night by allowing the temperature to fall to 60°. Afford a thorough supply of water to the border, mulching with a couple of inches or so of short manure, and over that a little drier and longer material, but this last may be deferred until after the final watering, if a second be deemed necessary, as is advisable with Muscats and all Grapes that are rather long in finishing. In the case of Grapes inclined to crack, increase the thickness of the dry material, and take care to avoid the deposition of moisture on the berries.

Young Vines.—Syringe copiously in the early afternoon, and close, mulch, and keep moist to attract and keep the roots active near the surface, affording water or liquid manure at a temperature of 90° to 100°. Allow all the lateral extension practicable, only see that it do not interfere with the leaves of the buds to which the Vines are to be pruned in winter.

PLANT HOUSES.

Eulalia japonica variegata.—Although classed as a greenhouse plant there is no comparison between its growth in that structure and when grown in the stove. It grows more rapidly in the latter, and its foliage is much more beautiful. For groups or any arrangement of an ornamental character it has few if any equals. Its slender grass-like foliage rising above other plants of a dwarf compact habit impart to the whole a light effective appearance. For these purposes grow this plant in quantity; it is readily propagated by division, and if grown in the stove it is surprising how rapidly a large stock of plants can be obtained by dividing every plant as they become ready for the purpose, or by growing one on to a good size for the purpose of supplying stock as others are injured or destroyed. They will, however, do good service for a long time, and then be suitable for stock purposes. When grown in the stove harden the plants by removal to the greenhouse for a week or two previous to using them. This plant is not very particular about compost, for it appears to do well in any fertile soil. It requires liberal supplies of water while growing.

Cyanophyllum magnificum.—This and *Sphaerogyne latifolia* that had their leads destroyed in spring for the purpose of stock will now have some good shoots for cuttings upon them. Cut these off with a sharp knife close to where they issue from the old stem. Insert them in light sandy soil well watered, and keep them perfectly close under a bell-glass, and well shaded from the sun until they are rooted. After they are rooted the greatest difficulty in managing these plants is to harden them to stand exposure in the house in which they have been rooted. This must be done carefully and gradually, or else they will flag and probably go off altogether. Only a little air should be admitted at first, and gradually increase at intervals of two or three days.

Crotons.—These should be rooted in quantity where a large stock of plants are required in good condition for decoration through the winter in 5 and 6-inch pots. They root freely at this period of the year in the propagating frame. Good heads may be inserted in the pots in which they are to be grown. The smaller plants must be potted directly they are well rooted, and the whole gradually exposed to full light and sunshine if the high colouring of their foliage is to be fully developed. This must not be delayed too long, for Crotons will not colour properly

if this work is left to the autumn, but once well coloured they can be kept in that condition all winter by preventing fresh growth.

Ericas.—Softwooded varieties that have started freely into growth will, after they are thoroughly hardened, be better outside than in cold frames. All in a backward state of growth should be retained under cool frame treatment for some weeks longer until they are growing freely, when they are better outside than under glass. When the plants are plunged outside give each one plenty of room. By such treatment the plants make sturdy growth, which will become thoroughly ripened and is certain to flower profusely. Every care should be exercised in watering the plants; the soil must not be saturated, while on the other hand they must not be allowed to suffer by an insufficient supply. Syringe the plants twice daily on all favourable occasions, and keep the material upon which they are standing or plunged in a moist condition. Hardwooded plants must have abundance of air. All plants that it is intended to retard for flowering as late as possible in the season should be stood on ashes outside where not directly exposed to the sun. These should be sheltered with lights, so that thorough protection from heavy rains can be given them. Light shade can be applied beneficially to all making their growth, but directly it is completed harden the plants and place them outside to ripen. A good crop of flowers depends upon the state of the wood. While they are outside care must be taken that the sun does not strike directly upon their pots, or their fine silk-like roots will be destroyed. The pots can either be plunged or shaded by sacks or matting bound about them on the sunny side.

Epacris.—Plants that have been pushed into growth in a close atmosphere should be at once placed into cold frames. These should be slightly shaded from the sun and the frames kept moderately close for ten days or a fortnight, so as to guard against the plants receiving any check. After this time gradually give air more freely until the lights can be removed or the plants stood or plunged outside.

Cytisus racemosus.—This and other varieties may now be stood outside provided they have been thoroughly hardened for the purpose. Plants that have only just ceased flowering may be cut back and induced to break into growth in a cold frame, after which they may be hardened outside.

Choisya ternata.—Those plants that flowered early by being brought forward in gentle warmth may now be placed outside. Those that have only just flowered may be pruned back and induced to make fresh growth in cold frames. They must be pushed forward rapidly, or they will not have time to make their growth and ripen it for flowering another year.

THE FLOWER GARDEN AND PLEASURE GROUND.

Hot Weather and the Shrubberies.—June has been a very trying month for the shrubberies, more especially those newly formed. In order to keep many transplanted trees and shrubs alive it has been necessary to water them copiously both overhead and at the root. Nor must this treatment be discontinued for some time to come, as it is very rarely indeed that summer rains are sufficiently heavy to thoroughly moisten the balls of newly planted trees. Ordinary waterings also are of little avail, these merely damping the surface, but seldom reach the roots. Prior to watering a tree or shrub the surface soil should be carefully loosened with a fork, and a basin formed so as to retain all the water poured about each. If on examination it is found that the old ball cannot be moistened in this fashion, it should be pierced rather thickly with a pointed iron rod, after which the water will not fail to find its way into the centre. It should be remembered that transplanted trees have for some time to depend entirely upon what support they derive from the small quantity of roots preserved unbroken, and if these are not kept supplied with water failure is the natural consequence. Much good may be effected by mulchings, these preventing the loss of much moisture from the soil by evaporation. Strawy manure being considered unsightly, the next best thing is the grass from the mowing machine. Not only is this usually wasted material good for mulching new plantations, but it also greatly benefits those well established. Rhododendrons, whether in beds or isolated, are greatly improved by these mulchings of short grass. In addition to preserving the much-needed moisture it eventually decays and affords a good supply of food for the roots, therefore distribute the grass among the shrubberies as fast as it is cut.

Roses.—These are improving rapidly, and the dwarfs that are not badly injured by frosts promise abundance of fine blooms. We always thin out first the shoots and then the buds, too many of either being so much wasted strength; nor do we hesitate to cut the blooms freely, this apparently wasteful practice, at least when several buds are cut with the blooms, really resulting in a much earlier successional supply. In order to prolong the supply of early blooms it is a good plan to remove a good many of the central buds, especially when these are at all malformed, and this strengthens the later buds. If extra fine blooms are desired plenty of water and liquid manure must be applied to the roots. Blooms obtained from plants growing in a semi-starved state are never so durable or brightly coloured as those produced by liberally treated plants. The most generally neglected are those growing against sunny walls, these being very frequently more of an eyesore than an ornament. Now is the time to loosen the surface, to well soak the ground first with water, and then liquid manure. Then if they are further mulched with manure, and this covered with soil, new life will quickly be imparted into the trees. The free-flowering and good old Gloire de Dijon is usually the last to survive starvation treatment, but even this will give out sooner or later unless assisted at the roots.

THE BEE-KEEPER.

NOTES OF THE SEASON.

THE WEATHER AND SWARMING.

THE weather took a favourable change here on the 14th inst., and on June 18th the temperature was 87° Fahr. in the shade. On the 17th, with the sun obscured, the thermometer stood at 86°. The weather, although fine, is rather too warm for bees making much weight. Then another thing against that is the short time we have had fine weather. Previous to the 14th the weather was unfavourable, and hives in general had little honey in them, and the bees had not secreted wax. They are now doing so, and the building and drawing out of combs will go on apace. Swarming commenced in this district on the 17th of May, but it is only become general about the 16th of June. No comb to speak of was made till the 14th of June, and some bees swarmed that had their hives only half full of combs. The Hawthorn blossom has helped the bees much this season, and the hives have quite an aroma of the blossom. Although our bees had not done much until the 14th inst., less than three miles distant bee flight, near extensive orchards and willows, during the end of April and beginning of May the bees in that district made much comb and stored abundance of honey.

FOREIGN BEES.

Owing to the excessive and protracted cold the pure Syrian race lost many adult bees, but are again recovering, and will no doubt make up shortly what they lost by the decimation in May, only they are not the farthest ahead at the present time.

The first, as usual, are the crossed Cyprians. On the 14th June, the first day I interfered with them since September, I found that one in a compound frame hive had built out two full combs, 17½ inches deep and 12 inches wide, and had much sealed honey, the contents of the hive, bees and combs weighing 70 lbs.; on the 16th it rose in weight 12 lbs., and on the 17th 8 lbs. Its total weight of contents of hive is now 105 lbs. Had the weather not changed many of the other hives would have required feeding, but these Cyprians could give a surplus. The Carniolians are also in good order, and were as a rule better provisioned than common stocks hereabouts. The crossed Cyprians have supers well advanced, while others are only taking to them yet. All of the same breed I distributed amongst bee-keepers are in a similarly advanced state. Many people have witnessed these bees and their doings, and should the weather be favourable for two or three weeks during the profuse bloom of Charlock, Beans, and Clover they will be heavy hives. Regarding the working qualities of foreign bees when honey is abundant there is no doubt they far excel our old British bee, but I fear many people have not estimated them properly, nor given them a chance to prove their superiority. They have in some cases judged them by appearance, and in others expected more from them than bees could do, and so were disappointed, expecting half-sized colonies to fill full-sized supers, and to work on days that other bees could not.

Their superiority exists in their breeding earlier, being always in advance of others, having a greater disposition, owing to their structure, to gather honey when others cannot find it, or when they are in search of something else, and the large hives give the pressure and stimulus

at the right times; and, as many little make a "muckle," hence the great weight these bees attain over others. The secret in managing is large hives, plenty of honey and pollen in them during September, keeping them dry and comfortable; but never annoy them from the time they are put up for winter until supers require to be placed on, and give these just when the hive is full of bees and honey plentiful, and you will have the satisfaction to see the bees take to them at once. Whenever well begun in the first super add a second upon the top of the first one. If extracting is to be practised have some empty well-cleaned combs to replace the full ones taken away. Never put broken and dripping combs to a hive wrought for extracting purposes. It delays them much longer to repair old combs than build new ones from foundation; and never extract honey from unsealed combs.

While the honey season is in do not let the bees loiter nor put back swarms. If they should swarm against your will, join two swarms if a good hive and fine honey is wanted. Swarms always work more eagerly than old stocks; half-filled supers on the latter should be transposed to the swarm a few hours after hiving. Young queens should now receive full attention for next year's service.—A LANARKSHIRE BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

Veldhuijzen Van Zanten & Sons, Lissé, near Haarlem, Holland.—*Catalogue of Dutch Flower Roots.*



All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

LATE INQUIRIES.—It is necessary to again remind correspondents that letters arriving on WEDNESDAY MORNING cannot be answered in the "next issue," which is then far advanced for press.

Seedling Lilies (W. T.).—It is probable that a cross has been effected as you state, but seedlings are very variable, and we have recently seen some seedlings that combine the characters of the two species in a curious manner. By all means preserve those you have, their character may develop more fully later on.

Plants for Covering Trellis (H. G. B.).—There is really no climber of an evergreen character that would answer your purpose; but evergreens (not climbers) that are likely to succeed and form beautiful objects are *Berberis stenophylla*, *Ceanothus aznrens* var. *Gloire de Versailles*, which requires protection in severe weather; *Crataegus Pyracantha Lelandi*, *Escallonia macrantha*, *Garrya elliptica*, *Ligustrum lucidum tricolor*, and *Magnolia grandiflora* var. *Eximioth*. Perhaps, however, green and variegated Ivies would answer as well as anything.

Catleyas (A. B. C.).—Keep all the plants to which you refer in a free-growing state till the pseudo-bulbs have completed their growth, then gradually reduce the supply of water and maintain a drier atmosphere. When the plants are flowering they are usually kept in a rather drier and cooler house for preventing the petals spotting and prolonging the beauty of the flowers; that rests them sufficiently at this season of the year. Encourage the young growths on *C. Sanderiana*, and this will aid those more advanced to become the finer.

Fertilising Roses (G. W.).—All the organs of fructification are in the same

bloom, at the base of the petals. Clipping off the latter before they have developed encourages the growth of the stamens and pistils, and renders them more amenable to fertilisation, naturally or artificially. The sexual organs appear, however, to become suppressed in some flowers, and undergo a change in others, unfitting them for seed-producing; and in all probability you will have to make many experiments before you succeed in your object. Old Rose trees are as a rule better than young plants as seed-producers, and some varieties much more productive of seed than others. We know of no work on the subject.

Beetles Infesting Roses (S. H. B.).—These belong to the species sometimes called the "flower-loving beetle," or the June bug. The scientific name is *Phyllopertha horticola*. In Rose gardens at times they appear very numerous, nibbling the petals and showing a special liking for white Roses. They are most abundant on flowers about midsummer, but this is not their first appearance. As is the case amongst several of the tribes of beetles the brood emerges by degrees, and a portion comes out in May and then attacks the newly formed fruit on many trees, and also on some low-growing species, such as the Strawberry. The larvæ or grubs of these beetles feed on the roots of plants in the later summer and autumn, occasionally doing perceptible damage to grasses and cereals.

Heating Houses (A. B.).—To heat the small house you have a boiler which, if you add an inch to its height and width, and 6 inches to the length, would probably heat another house double the size, and there would be a corresponding saving in fuel. For two houses six times the length and enclosed area you would not require six times the quantity of fuel; but allowing for waste, a boiler of six times the power would consume about three times the fuel of the present one. A wide house is much more economical than a narrow one in the utilisation of heat or fuel, but convenience is a factor that must be reckoned with on the score of adaptability for the purpose required and in respect of its bearing on labour. Had you given particulars of your present house we should have been able to assist you more agreeably to ourselves and more satisfactorily to you.

Mildew on Vines (Torbay).—A dry border with a close damp atmosphere and low night temperature is favourable to mildew, and Vines in some positions where the air is damp and still, as in valleys, are more liable to be attacked than where the atmosphere is drier and the circulation of air free. Leaving the ventilators of vineries closed too long in the morning is often followed by mildew. All you can do is to maintain a very buoyant atmosphere, dry rather than moist, and to take care the roots are well supplied with water. We have never known mildew on Vines refuse to yield to sulphur when effectively applied, but it cannot be extirpated by any means without the Grapes having sustained some injury, not by the sulphur but the parasite. We have not tried Harris's sulphide of potassium, that has been advertised, on Vines; but it is said to destroy the mildew that attacks them. We fear you have erred in some way in the important work of ventilating the house.

Peach Trees Unsatisfactory (E. R.).—The trees having an enormous crop last year is sufficient to account for their being almost fruitless this season. An overcrop is a great strain on the trees, and prevents the storing up of sufficient nutriment in the wood for the formation of the buds in the first instance, and their ultimate development into the organs of fructification in a perfect manner, this resulting in a bad set and uneven swelling of the fruit. We have known trees take two years to recuperate their wasted energies consequent on overcropping. The thing is to secure stout, short jointed, well fed wood, disposing the shoots thinly, so as to insure thorough solidification, keeping the foliage clean and healthy as long as possible. The trees may be safely lifted in autumn, or as soon as the leaves give indications of falling, preserving all the fibrous roots, and laying them in fresh loam nearer the surface. It is an infallible remedy for trees that fail to set and stone the fruit satisfactorily, requiring only careful judgment to insure success.

Grapes Scalded (Idem).—The Grapes sent are scalded. Slight shade from bright sun will prevent it; but a better remedy is to ventilate rather freely, especially in the early part of the day, and to maintain a rather warm condition of the atmosphere, or 65° to 70° at night and 70° to 75° by day, which with the ventilation keeps the air in motion, preventing the deposition of moisture on the berries and the consequent excess of evaporation after the ventilators are opened.

Transplanting Hollies (H. G. B.).—As the Hollies are somewhat large, and have been grown rather thickly in the hedgerow, their removal is rendered more difficult, therefore great care and judgment will need to be exercised in the work. Attempting their removal now, with the ground as dry as dust and a broiling sun overhead, would certainly result in failure, and ought not to be attempted. It would have been quite different if the Hollies had been grown singly, and there were a possibility of securing a ball of soil with the roots. As there is no hope of this, we advise your deferring operations until the soil gets thoroughly moist in late summer, or from the middle of September to early October, or if the weather be mild up to early November; then take up carefully, preserving all the roots practicable, and some soil if possible, and replant where required, giving a good watering unless the soil is in a thoroughly moist state, when water need not be given. Make secure against winds, cutting back the heads in spring—the first mild weather in April, and they will in all probability grow well. The next best time to move Hollies of the kind you describe is during the first mild weather and showery that prevails after the vernal equinox, or just before they start into growth, which is preceded by the trees pushing fresh rootlets, a similar process taking place in late summer or early autumn. In a late season well rooted Hollies may be safely moved up to June.

Vines not Growing (C. G.).—Considering you have been a reader of the Journal for so many years it is a little surprising that you have acted quite contrary to the advice that has been repeatedly given on planting Vines in the spring just after starting into growth, cutting them back the autumn previous to the desired length. We do not assert that Vines will not grow when planted in the autumn, but we do not hesitate saying, that when autumn planting has been advised once, planting in spring has been advised a hundred times; still you planted in autumn and failed, then planted in the autumn again with similar results. We find no

trace of anything in the soil that would prevent the Vines growing. We believe that Vines planted at the right time and well managed would grow in such soil freely. It requires no manure mixing with it. Surface mulchings would give all the additional support needed. The roots you have sent are unhealthy because of the cessation of top growth. We rather suspect you left the canes much too long. The growth extended so long as there was sap in the canes, and, this exhausted, growth ceased because the roots could not absorb and continue the supply over such an extent of cane. If you will describe the length and strength of your Vines, how you planted, pruned, and treated them afterwards, we may perhaps be able to perceive where you erred apart from planting in the autumn. We are very sorry you have failed, and shall be glad if we can point out the way to success. Neither you nor anyone need hesitate to write to us when information is desired such as it is in our power to give.

Names of Fruits.—The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and beyond that number cannot be preserved. (*S. A. Woods*).—It is necessary for the better identification of Peaches and Nectarines to know the character of the leaves as well as the flowers. You have only indicated the flowers. Judging from appearance we think No. 1 resembles *Grosse Mignonne*, and No. 2 *Belle Bance*.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss or soft green leaves form the best packing, dry cotton wool the worst. Not more than six specimens can be named at once. (*J. P. M.*).—The common names of the herbs you have sent are—1, Tansy; 2, Tarragon; 3, Chervil. (*Juvenis*).—1, The name of the shrub will be given next week; 2, *Impatiens Sultan*; 3, *Viburnum Opulus*; 4, *Pilea muscosa*; 5, *Arenaria balearica*. (*C. H.*).—1, *Stylophorum japonicum*; 2, *Anchusa officinalis*; 3, *Gaithria Shallon*; 4, *Helianthemum polyfolium*; 5, *Leucothoe Catesbaei*. (*W. B.*).—*Magnolia acuminata*. (*Dropmore*).—*Calycanthus floridus*.

COVENT GARDEN MARKET.—JUNE 29TH.

STRAWBERRIES from the open now reaching us in good condition and supply. Grapes heavy at lower rates. Trade brisk.

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
<i>Aralia Sieboldi</i> , dozen ..	6	0 to 12	<i>Fuchsia</i> , dozen ..	4	0 to 9
<i>Arbor vitae</i> (golden), dozen	6	0	<i>Genista</i> , dozen ..	0	0
(common), dozen ..	0	0	<i>Geranium</i> (Ivy), dozen ..	4	0
<i>Azalea</i> , dozen ..	0	0	Tricolor, dozen ..	8	0
<i>Begonia</i> , dozen ..	4	0	<i>Hydrangea</i> , dozen ..	9	0
<i>Calceolaria</i> , dozen ..	4	0	<i>Lilies</i> Valley, dozen ..	0	0
<i>Cineraria</i> , dozen ..	0	0	<i>Lilium longiflorum</i> , doz.	18	0
<i>Creeping Jenny</i> , dozen ..	3	0	<i>Lobelia</i> , dozen ..	3	0
<i>Dracena terminalis</i> , doz.	30	0	<i>Marguerite Daisy</i> , dozen	6	0
viridis, dozen ..	12	0	<i>Mignonette</i> , dozen ..	4	0
<i>Erica</i> , various, dozen ..	18	0	<i>Musk</i> , dozen ..	2	0
<i>Euonymus</i> , in var., dozen	6	0	<i>Myrtles</i> , dozen ..	6	0
<i>Evergreens</i> , in var., dozen	6	0	<i>Palms</i> , in var., each ..	2	6
<i>Ferns</i> , in variety, dozen	4	0	<i>Pelargoniums</i> , dozen ..	6	0
<i>Ficus elastica</i> , each ..	1	6	scarlet, doz.	3	0
<i>Foliage Plants</i> , var., each	2	0	<i>Spirae</i> , dozen ..	6	0

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
<i>Abutilons</i> , 12 bunches ..	2	0 to 4	<i>Marguerites</i> , 12 bunches	2	0 to 6
<i>Anemones</i> , 12 bunches ..	2	0	<i>Mignonette</i> , 12 bunches	2	0
<i>Arm Lilies</i> , 12 blooms ..	3	0	<i>Myosotis</i> , 12 bunches ..	2	0
<i>Azalea</i> , 12 sprays ..	0	0	<i>Narciss</i> , 12 bunches ..	0	0
<i>Bluebells</i> , 12 bunches ..	0	0	White, English, boh.	0	0
<i>Bouvardias</i> , bunch ..	0	6	<i>Pansies</i> , 12 bunches ..	2	0
<i>Camellias</i> , blooms ..	0	0	<i>Peas</i> , Sweet, 12 bunches ..	3	0
<i>Carnations</i> , 12 blooms ..	1	0	<i>Pelargoniums</i> , 12 trusses	0	9
12 bunches ..	0	0	scarlet, 12 trusses	0	4
<i>Cornflower</i> , 12 bunches ..	2	0	<i>Pinks</i> , White, 12 bunches	1	0
<i>Daisies</i> , 12 bunches ..	2	0	various, 12 bunch	2	0
<i>Day Lilies</i> ..	5	0	<i>Pæony</i> , 12 bunches ..	6	0
<i>Eucharis</i> , dozen ..	4	0	<i>Poinsettia</i> , 12 blooms ..	0	0
<i>Gardenias</i> , 12 blooms ..	1	6	<i>Primula</i> (single), bunch ..	0	0
<i>Hyacinths</i> , Roman, 12			(double), bunch ..	0	9
sprays ..	0	0	<i>Polyanthus</i> , 12 bunches ..	2	0
<i>Iris</i> , 12 bunches ..	2	0	<i>Ranunculus</i> , 12 bunches	2	0
<i>Ixia</i> , 12 bunches ..	2	0	<i>Roses</i> , 12 bunches ..	4	0
<i>Lapageria</i> , white, 12			(Indoor), dozen ..	0	9
blooms ..	0	0	Tea, dozen ..	1	6
<i>Lilium longiflorum</i> , 12			red dozen ..	0	0
blooms ..	3	0	de Mois, 12 bunches	3	0
<i>Lilac</i> (white), French,			<i>Stephanotis</i> , 12 sprays ..	1	6
bunch ..	0	0	<i>Tropeolum</i> , 12 bunches	1	0
<i>Lily of Valley</i> , 12 sprays	0	0	<i>Tuberose</i> , 12 blooms ..	0	9
" 12 bunches	0	0	<i>Tulips</i> , dozen blooms ..	0	0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
<i>Artichokes</i> , dozen ..	1	0 to 2	<i>Lettuce</i> , dozen ..	0	9 to 0
<i>Asparagus</i> , bundle ..	1	6	<i>Mushrooms</i> , punnet ..	0	6
<i>Beans</i> , Kidney, per lb. ..	1	3	<i>Mustard and Cress</i> , punt.	0	2
<i>Best</i> , Red, dozen ..	1	0	<i>Onions</i> , bunch ..	0	3
<i>Broccoli</i> , bundle ..	0	0	<i>Parsley</i> , dozen bunches	2	0
<i>Brussels Sprouts</i> , ½ sieve	0	0	<i>Parsnips</i> , dozen ..	1	0
<i>Cabbage</i> , dozen ..	1	6	<i>Potatoes</i> , per cwt. ..	4	0
<i>Capsicum</i> , per 100 ..	1	6	Kidney, per cwt.	4	0
<i>Carrots</i> , bunch ..	0	4	<i>Rhubarb</i> , bundle ..	0	2
<i>Cauliflowers</i> , dozen ..	3	0	<i>Salsify</i> , bundle ..	1	0
<i>Celery</i> , bundle ..	1	6	<i>Scorzoner</i> , bundle ..	1	6
<i>Coleworts</i> , doz. bunches	2	0	<i>Seakale</i> , basket ..	0	0
<i>Cucumbers</i> , each ..	0	4	<i>Shallots</i> , per lb. ..	0	3
<i>Endive</i> , dozen ..	1	0	<i>Spinach</i> , bushel ..	3	0
<i>Herbs</i> , bunch ..	0	2	<i>Tomatoes</i> , per lb. ..	0	6
<i>Leeks</i> , bunch ..	0	3	<i>Turnips</i> , bunch ..	0	4

FRUIT.

	d.	s. d.		s. d.	s. d.
<i>Apples</i> , ½ sieve ..	0	0	<i>Oranges</i> , per 100 ..	6	0 to 12
Nova Scotia and			<i>Peaches</i> , dozen ..	4	0
Canada barre	10	0	<i>Pears</i> , dozen ..	0	0
<i>Cherries</i> , ½ sieve ..	0	0	<i>Pine Apples</i> , English,		
<i>Cobs</i> , 100 lbs. ..	0	0	per lb. ..	1	6
<i>Figs</i> , dozen ..	3	0	<i>Plums</i> , ½ sieve ..	0	0
<i>Grapes</i> , per lb. ..	1	6	<i>St. Michael Pine</i> , each	3	0
<i>Lemons</i> , case ..	10	0	<i>Strawberries</i> , per lb. ..	1	0
<i>Melon</i> , each ..	2	0			



MANURES AND FORAGE CROPS.

MR. MARTIN J. SUTTON'S EXPERIMENTS.

BRIEF reference was made in these columns last year to a series of experiments with manures on permanent and temporary pastures at Dyson's Wood, Oxon, the residence of the gentleman above named. We have recently had the pleasure of inspecting the plots that were dressed with different kinds of manures in the spring of 1886, and which have had no manure this year; also some other plots that have been manured this spring only. We have thus presented the relative effects of manure during the year of their application, also their after effects, so to say, or the condition of two seasons' crops from one dressing of manure.

After an inspection of the splendid pavilion of Messrs. Sutton and Sons in the show ground of the Royal Counties Agricultural Society at Reading on Wednesday, the 23rd inst., a number of gentlemen were entertained at luncheon by Mr. Martin J. Sutton, the company including Dr. Voelcker, Professors Harker, Kinch, McCracken, and thirty students from the Royal Agricultural College, Cirencester; Canon Bagot, Messrs. J. Nathorst of the Government College of Agriculture, Sweden; J. A. Caird, R. and J. Stratton, Bernard Dyer, A. Kains-Jackson, W. E. Bear, and several other representative agriculturists—their presence testifying to the wide interest that attaches to the subject of developing in a profitable manner the resources of the soil.

Before entering the carriages, first for a passing glance through Messrs. Sutton's trial ground and interesting and extensive grass garden, and subsequently to the fields wherein the chief experiments are conducted, Mr. Sutton explained that his sole object in instituting them was to obtain information of a reliable nature that might be of benefit to cultivators. The experiments were conducted on a scientific basis, but above all he desired them to be practical—that is to say, his object was not to show that so-called artificial manures increased the bulk and value of crops, as that was well known, but he wished to ascertain if satisfactory results would follow the application of manures purchased at a cost that grass-land farmers might reasonably be expected to incur in the routine of their operations. That was his object, and having no interest whatever in the sale of manures it was a matter of perfect indifference to him as to which proved the better, except in so far that a way might be pointed out which he and others might pursue with advantage in obtaining a better return from their fields than before. In the carrying out of his plan he had secured the valuable co-operation of Dr. Voelcker, who, within a prescribed limit of cost, had chosen the quantities and mixtures of the various manures employed; indeed, Dr. Voelcker was the real experimenter, he (Mr. Sutton) having been glad to provide the means for testing the merits of the different ingredients under conditions equally fair to all in fields then open for inspection.

Dyson's Wood is about four miles from Reading, a great part of the road passing through Mr. Sutton's estate, and the full, level, promising fields of corn afford evidence of that good management which alone can render farming nowadays even moderately remunerative.

In the experiments under notice eighty-four plots are wired off in six fields, each plot representing exactly a hundredth part of an acre, and by accurately weighing and determining the precise money value of the manures applied to each plot, the cost per acre is readily ascertained; also by carefully weighing the produce in a green and dried state, both of the first cutting and aftermath, the increase per acre, with its money value, is found, and the actual gain or loss, as the case may be, resulting from the manures determined. The most scrupulous care is taken both in the application of the manures

and securing the crops, screens having been employed to prevent a particle of either being blown over the border line, so that the outcome of the experiments may be regarded as absolutely correct.

As this season's crops were not cut at the date of inspection, their condition in the growing state could only be noted in connection—and this is important—with the manures applied to each plot and the value of the produce obtained from it last year. This may be fairly represented as follows, taking six plots on a very old pasture as an example, one plot unmanured, the others dressed with the ingredients mentioned, the yield of produce in each case being the actual increase over the returns from the unmanured plot.

Manures, per acre.	At a cost of.	Produced an increased yield of hay.	Net gain per acre from manuring.	Gain per cent. on outlay.
	s. d.	cwt.	s. d.	
Sulphate of ammonia 1 cwt.	14 0	10	26 0	185
Nitrate of soda 1½ cwt.	16 3	7	11 9	72
Superphosphate of lime } 3 cwt.	15 9	11	28 3	179
Kainit 2 cwt.				
Sulphate of ammonia } 1 cwt.	20 0	12	28 0	140
Kainit 2 cwt.				
Superphosphate of lime } 3 cwt.	28 9	11	15 9	54
Nitrate of soda 1 cwt.				
Kainit 2 cwt.				

In the first year's returns from that experiment it will be seen that comparing the effects of the two great nitrogenous manures, sulphate of ammonia and nitrate of soda, that the former was more than twice as profitable as the latter. It is next observable that as regards bulk of produce, it was equal from superphosphate of lime and kainit, and from the same quantities of the two with 1 cwt. of nitrate of soda added, the cost in the former case being 15s. 9d., in the latter 28s. 9d., showing that the nitrate of soda was ineffective and its cost, 13s., thrown away. The mixture of sulphate of ammonia with kainit was very profitable, but not quite equal to the superphosphate of lime and kainit above mentioned. It would thus seem that the superphosphate was sufficiently active to enable the crop to benefit by the potash without the aid of nitrate of soda. Now to the after effects—the condition of this year's crops without any further manuring. The nitrate of soda plot is weak; the sulphate of ammonia plot better; the sulphate of ammonia and kainit crop weak; also, but to a less extent, is the superphosphate and kainit plot, the best plot perhaps being that from manures named last in the table, as the least profitable in 1886. The weakness of what may be termed the two potash (kainit) plots is attributed to the mass of yellow Suckling it induced, choking the graminaceous herbage, potash being a great promoter of Clover growth and leguminous crops generally. It will be interesting to observe the relative values of the crops of this year, but it will be seen that the gain in three of them last year was thereabouts equal to the rent for an impoverished pasture on brashy soil resting on chalk, and it will be conceded, perhaps, that saving the whole rent by improved management is better than an abatement of 25 or even 50 per cent. as compensation for unremunerative crops. The former is a proud achievement due to enterprise founded on good judgment; the latter, while it may be a fair restitution, still has the savour of a charitable dole.

In this group of plots were several manured for the first time this year and still uncut. They appear to have been instituted mainly for comparing the value of the new basic cinder with other phosphatic manures; muriate of potash with sulphate (kainit); the different forms of bone manure, and the whole with the best farmyard manure, prepared under cover, and applied at the rate of 10 tons per acre. The results remain to be proved, but when inspected the farmyard manure plot was the greenest, latest, and most succulent, but it is doubtful if it will be the most profitable. The ground coprolite plot with kainit appeared better than the basic cinder with kainit. Of the three forms of bone manure—dissolved, boiled, and raw meal—the advantage (in none very marked) appeared to rest with the latter. The muriate of potash plot (with nitrate of soda) was promising. Gypsum, 10 cwt. per acre, appeared to have little or no effect, and the plot was much inferior to one that had been dressed with decorticated cotton cake, 5 cwt. per acre; crop excellent. The potash again brought Clover in all the plots to which it was applied.

Passing to another field—a four-year-old pasture containing a good proportion of Perennial Rye Grass and a superabundance of

Cocksfoot, though only 2 lbs. per acre were sown, Mr. Sutton finding that ample for chalky uplands, we find still more remarkable results from manuring.

Manure per acre.	At a cost of	Produced an increased yield of hay.	Net gain per acre from manuring.	Gain per cent. on outlay.
	s. d.	cwt.	s. d.	
Sulphate of ammonia, 1 cwt.	14 0	14	42 0	300
Nitrate of soda, 1½ cwt.	16 3	19	59 9	367
Superphosphate of lime, } 3 cwt.	15 9	13	36 3	230
Kainit, 2 cwt.				
Sulphate of ammonia, 1 cwt. } Kainit, 2 cwt.	20 0	15	40 0	200
Superphosphate of lime, } 3 cwt.	28 9	20	53 3	143
Nitrate of soda, 1 cwt.				
Kainit, 2 cwt.				

Here we find in this stronger pasture of stronger Grasses nitrate of soda taking the lead of sulphate of ammonia, and we also find that every shilling expended in this latter brought an extra cwt. of hay. The mixture of superphosphate and kainit was again rather better than sulphate of ammonia and kainit; also that, as before, the nitrate of soda in the last plot tabulated was superfluous. Regarding the after results—that is, this year's crop from last year's manuring, we find that Clover is practically driven out of the sulphate of ammonia and nitrate of soda plots; but in the superphosphate and kainit plot it abounds, this plot being slightly better than the one in which nitrate of soda was added to those ingredients, again showing that the rather costly addition was not wanted. The condition of the sulphate of ammonia and kainit plot has fallen off considerably, suggesting, or rather proclaiming, that superphosphate was required for the continuous support of the herbage in this field. The exact results of this year's manuring remain to be ascertained, the relative condition of the crops being practically the same as in those in the field referred to—farmyard manure, decorticated cotton cake, and a mixture of muriate of potash and nitrate of soda producing the best plots; gypsum, nil; bone manured plots (without any addition) somewhat disappointing, and ground coprolites promising to surpass the basic cinder manure.

We next entered a field sown down for permanent pasture on an Oat stubble in August, 1884, the seed being harrowed in and rolled in the same way as Trifolium is sown. As an experiment half the field was sown with a mixture recommended by an agricultural authority, from which Rye Grass was excluded, Cocksfoot and Meadow Fescue being increased in its stead. From this part of the field there was nothing to cut the following year, while the part in which a suitable proportion of Rye Grass was included gave a ton of hay to the acre. The difference of the two halves of the field is very apparent now. It can be both seen and felt, the part in which no Rye Grass was sown being thin and a poor pasture; that containing Rye Grass being full and close to the tread. The soil is light and apparently thin. Whatever the results of excluding Rye Grass may be elsewhere, there can be no two opinions as to the superiority of that half of Mr. Sutton's field that contains it, and which was laid down nearly three years ago. The experimental plots in this field on the part containing no Rye Grass may be summarised thus: An outlay of 16s. 3d. in nitrate of soda gave a net gain of 21s. 9d. per acre, and of 14s. in sulphate of ammonia 21s. an acre. Kainit added to the sulphate only brought a net increase of 8s. per acre, while a small loss was incurred from using superphosphate and kainit, also with 1 cwt. of nitrate of soda added to the two minerals. It would seem that on this poor, thin pasture the superphosphate and kainit counteracted the effects of the 1 cwt. of nitrate of soda, seeing that 1½ cwt. of this salt alone gave a very handsome profit indeed. On the part of the field containing Rye Grass loss was incurred after an outlay of 15s. 9d. in superphosphate of lime and kainit, also on 14s. in sulphate ammonia alone; but 20s. expended in 1 cwt. of the latter manure and 2 cwt. of kainit gave a net gain per acre of 35s., or 175 per cent. on outlay. The mineral manures appear to have had little effect on the first crop in this light soil, but are telling on the after crop, there being practically no Clover where they have not been applied. Speaking of Clover reminds of a sheep experiment in this field. A flock was turned into it last autumn, and remained for about a month, the weather being dry; but a few small 100th part of an acre squares were hurdled round. It is only in these squares from which the sheep were excluded that there is any Clover—a mode-

ately good crop—the remaining part of the field being destitute of this forage plant, the sheep totally ruining it in the time named. It was of course Red Clover that they cropped so thoroughly. They would not have served the small white kind in exactly the same way.

The last field entered was a three-years lay, half including Rye Grass, the other half being sown with a standard mixture excluding it, the whole laid down with Oats in April, 1885; land poor and thin. In the following spring the half of the field containing no Rye Grass was such an utter failure that it was ploughed up and sown with Tares, except a portion left for these experiments. The unmanured plot on this portion gave a yield at the rate of 1 ton 14 cwt. 3 qrs. per acre green, 15 cwt. 1 qr. dried as hay. The unmanured plot on the Rye Grass portion of the field gave 2 tons 19 cwt. 0 qr. green; 1 ton 9 cwt. 2 qrs. hay, or nearly twice the weight, and not less in nutritious value than from the weaker part, for according to Dr. Augustus Voeleker's analysis⁶ Rye Grass is only exceeded in nutritious properties by the Foxtail (*Alopecurus*). The results of the manurial experiments in this field may be briefly stated. In the portion containing Rye Grass an outlay of 16s. 3d. for 1½ cwt. of nitrate of soda gave a net gain per acre of 48s. 9d.; 14s. for 1 cwt. of sulphate of ammonia resulting in a gain of 46s.; 20s. for 1 cwt. of sulphate of ammonia and 2 cwt. of kainit showing a clear gain of 37s.; while 15s. 9d. expended on superphosphate of lime and kainit resulted in a loss of 13s. 9d. The after effects—that is, the condition of the plots—now show that those dressed with the nitrogenous manures, and that gave such a remarkable return, are not equal to the unmanured plot; and the best results are seen where the superphosphate and kainit was applied. In the portion containing no Rye Grass nitrate of soda gave slightly the best results—a gain of 51s. 9d. per acre on an outlay of 16s. 3d., sulphate of ammonia closely following, the other manures being the same and showing no appreciable difference from the results in the foregoing experiment; the after effects, too, are essentially the same in both cases, the best plot now being that dressed with superphosphate and kainit last year, and the worst those to which nitrogenous manures were applied.

The lesson so far taught by these well conducted experiments is that it is easy to err in applying nitrogenous manures too freely and exclusively to new pastures with little or no bottom, and thus kill the goose that lays the golden eggs. Phosphates and potash are clearly essential, as though, especially when used alone, they show no effects the first year, they tell very strikingly the second, and may even by inducing a thick growth of Clover choke out all but the robust grasses, unless the finer are aided by a further dressing of ammoniacal salts. On old pastures with a close thick sward superphosphate of lime and kainit are clearly beneficial and profitable, these materially increasing the yield of produce, and certainly enhancing its value by rendering it more nutritious. The effect of the mineral manures would probably have been more marked if they had been sown earlier in the season.

If property has its duties, as most large proprietors recognise, so Mr. Sutton appears equally to recognise that success has its obligations; and it may be taken for granted that before the Dyson's Wood experiments are concluded information will be elicited of great value to landowners, farmers, and gardeners; indeed, to all who are identified with or engaged in the cultivation of the soil.

WORK ON THE HOME FARM.

Meadow hay requires careful management always, and this year we have to see that it is not over-dried before it is carted to the stack, for the heat and drought tell so much upon many of the pastures that much of the grass has been quite brown before it could be mown. We are still mowing grass, for we have extensive pastures on the home farm, and the mowing machine is kept going from 4 A.M. till 8 or 9 P.M., fresh horses being used every two or three hours. The tedding machines are also kept briskly at work, the horse rakes follow in due course, and so fine has the weather been, that up to the time of writing this note we have made no haycocks this season. The work was never got through more quickly and at less cost. Fermentation is going on nicely in the ricks that are finished, and we believe that with the exception of a thin crop upon some portions of the pastures, the hay harvest will be a good and successful one. Two meadows of about forty acres have a fine deep rich loam, in which the grass is still growing freely; this will be left to be mown last of all after the thinner and more forward crops are saved. The value of the Clovers in permanent pasture was never more apparent than now, for where the grass has ripened prematurely and deteriorated in quality for hay, the Clover serves to impart both flavour and richness. Not only would we have White and Red Clover in such pasture, but also the common Yellow Clover, which is also known as Trefoil, Black Medick, and by its scientific name of *Medicago lupulina*. It is really a biennial, but once established it reproduces itself so freely from seed that it may be regarded as a permanent plant. Its early growth renders it valuable for grazing, but it is of even greater

value among the grass for hay, and we would recommend it as invaluable for sowing upon thin old pasture.

Our advice was asked recently about the selection of a mowing machine, and we at once recommended the Hornsby mower, of which we have had three at work lately, all of them doing the work well without any breakdown. No doubt the machines of other makers do the work well, but in the Hornsby machine we find the best combination of strength with simplicity and lightness. The connecting rod is short and very strong; it is, moreover, attached to the gear on the same side as the knife, and is altogether preferable to the long, weak connecting rod of some makers, which work right across the front of the mower, and so are liable to clog and often become broken or bent.

SEED STANDS AT READING.

At the Royal Counties Agricultural Show held at Reading last week Messrs. Sutton & Sons surpassed all their former efforts in the erection of the structure representing their business. In design it resembled a Swiss chalet, with a broad verandah round three sides, ascended by steps and surrounded by a balustrade covered with climbing plants. The walls of the building were eased with virgin oak and panelled with flowers, well furnished hanging baskets being further suspended from the roof. In the enclosure round the pavilion was an attractive flower garden, in which various kinds of hardy annuals were charmingly grouped, and associated with a great display of Irises. The terrace slope was a close and perfect lawn, though the Grass seeds had only been sown five weeks, and in this large letters were cut showing the name of the firm in Golden Feather. Inside were piles of large solid roots grown at home, and models presented by the Government of India, Grasses tastefully arranged, bright panels of Begonias and fine groups of Gloxinias, among them several plants raised from seed sown in January of the present year flowering freely. The whole arrangement was quite a departure from the extensive and elaborately furnished seed stands and museums that are seen at exhibitions, and attracted, as it could not fail to attract, crowds of admiring visitors to the show.

Messrs. Webb & Sons of Wordsley, Stourbridge, displayed their extensive museum, with which visitors to shows are familiar, and which is admirably representative of the character of their trade and business enterprise. Prominent amongst the numerous items of interest to both farmer and gardener were specimens of Webb's agricultural roots grown in 1886, which, in addition to being of great size and fine quality, gave undeniable proof of keeping properties by their splendid condition. Webb's Imperial Swede, Mangolds, common Turnips, and Kohl Rabi were also of great merit. Pots of Grasses in growth were exhibited, whilst the extensive collection of natural and other Grasses was interesting. A splendid collection of Potatoes was an attractive exhibit, comprising all the best sorts, and notably Webb's new varieties—Kinver Hill, Red King, Renown, Wordsley Pride, Discovery, Benefactor, &c., also new seedlings to be sent out next season, and to some of which first-class certificates have been awarded. The novelties on this stand included those valuable forage plants, Maize and Sorghum, which are recommended by Professor Long in a recent issue of the Royal Agricultural Society's Journal. Another important feature was formed by sheaves of Webb's Prize Cereals. Samples are also exhibited of Webb's special manures, which have attained popularity owing to the high-class results obtained from their use. They are manufactured on a large scale at Widnes, Lancashire, and are sold to guaranteed analyses. Boxes of vegetable seeds, also samples of grasses, cereals, &c., adapted for ensilage crops were on view, and numerous large photographs and coloured plates of Webb's specialities in bulbs, flowers, &c., contributed to the attractions of the display.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain
1887. Jnne.	Baromet. at 32° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Temperature.		Radiation Temperature		
		Dry.	Wet.			Max.	Min.	In sun.	On grass	
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.
Sunday	19	30.240	72.1	62.8	N.E.	63.9	84.3	53.5	130.4	49.4
Monday	21	30.351	60.6	64.3	N.E.	64.6	75.6	54.2	119.4	52.8
Tuesday	21	30.355	62.8	62.9	N.	64.2	74.3	45.5	124.3	43.3
Wednesday ..	22	30.352	58.4	60.9	N.E.	63.7	75.7	49.1	119.4	44.7
Thursday	22	30.362	59.6	55.7	N.E.	64.2	78.7	52.7	123.6	48.3
Friday	23	30.267	56.9	54.0	N.	64.5	65.7	52.0	107.5	48.6
Saturday	25	30.263	64.7	53.0	N.E.	63.1	76.2	52.3	106.8	53.7
		30.297	60.7	54.8		64.0	75.8	51.3	118.8	48.7

REMARKS.

19th.—Very bright and hot throughout.

20th.—Bright, breezy, and pleasant.

21st.—Clear, bright, and fresh.

22nd.—Cloudy early; bright day.

23rd.—Cloudy till about 10 A.M., bright after.

24th.—Overcast all day and cold.

25th.—Gloomy and overcast, with scarcely a breath of wind in the morning; fine and bright after 3 P.M.

A week of rainless summer weather, but cloudy at times. Temperature about 1° below that of the preceding week, but still above the average.—G. J. SYMON.

* "Sutton's Permanent and Temporary Pastures," pp. 124 to 148.

